NRC Form 374
(5-84)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No. 41

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. General Electric Company Space Systems Division Valley Forge Space Center	In accordance with letter dated December 4, 1987, 3. License number 37-02006-05 is amended in its entirety to read as follows:
2. P.O. Box 8555 Philadelphia, Pennsylvania 19101	4. Expiration date August 31, 1989
	5. Docket or Reference No. 030-06046

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with Atomic Numbers between 3 and 83, inclusive, except Strontium 90	A. Sealed sources	A. Not to exceed 10 curies per source and 75 curies total
B. Any byproduct material with Atomic Numbers between 3 and 83, inclusive, except Krypton 85	B. Any	B. 20 curies maximum total except for: Iodine 129- 100 millicuries Iodine 131- 330 millicuries Iodine 125- 800 millicuries Phosphorus 32- 1.5 curies Strontium 90- 2.5 curies
C. Any byproduct material with Atomic Numbers between 3 and 83, inclusive	C. Neutron irradiated electronic components	C. 2 curies total
D. Krypton 85	D. Any	D. 45 curies total
E. Strontium 90	E. Sealed sources	E. 10 curies total
F. Polonium 210	F. Any	F. 0.6 curies total
G. Americium 241	G. Sealed sources	G. 4 curies total
H. Uranium 235	H. Sealed sources	H. 4.7 grams total
I. Plutonium 238	I. Sealed sources	I. 6 milligrams total in 5 sources
J. Plutonium 239	J. Sealed sources	J. 10 micrograms total in 2 sources
K. Plutonium 239	K. Sealed sources	K. 6 micrograms total in 4 sources
L. Hydrogen 3	L. Any	L. 100 curies total

UNITED STATES NUCLEAR REGULATORY COMMISSION

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 6
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MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
37-02006-05

Docket or Reference number
030-06046

Amendment No. 41

(Continued) CONDITIONS

9. Authorized use

A. through G. Research and development as defined in Section 30.4(q) of 10 CFR Part 30.
H. through K. For storage and calibration of instruments.
L. For storage or for use in gas chromatographs for sample analysis.

10. Licensed material may be used at facilities of the licensee located at the Valley Forge Space Center, 260 Goddard Boulevard, King of Prussia, Pennsylvania and ancillary facilities located on Third, Fifth and Vandenburg Avenues and on Allendale Road; 3198 Chestnut Street, D and Luzerne Streets, 401 E. Hunting Park Avenue, Skeats Hi Power Lab, Test Cell No. 6 and Lab Building 20,7500 Lindbergh Boulevard, Philadelphia, Pennsylvania; Satellite Assembly Building, Cape Canaveral Air Force Station, Cape Canaveral, Florida; Vandenbury Air Force Base, California, and at temporary job sites of the licensee anywhere in the United States where the U. S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated by Ionizing Radiation Advisory Group, Dr. S. J. Mucha, Chairman.

B. The Radiation Safety Officer for this license is Alfred W. Kobylinski.

12. Licensed material shall not be used in or on human beings.

13. A(1) Each sealed source or detector cell acquired from another person and containing licensed material, other than hydrogen 3, with a half-life greater than 30 days and in any form other than gas shall be tested for contamination and/or leakage before use. In the absence of a certificate from a transferor indicating that a test has been made within 6 months before the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

(2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source or detector cell is exempt from such leak tests when the source or detector cell contains 100 microcuries or less of beta and/or gamma emitting materials or 10 microcuries or less of alpha emitting material.

(3) Except for alpha sources, the periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage before any use or transfer to another person unless they have been leak tested within 6 months before the date of use or transfer.

(13. Continued) CONDITIONS

B. Each sealed source or detector cell fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to use or transfer as a sealed source or detector cell. If the inspection or test reveals any construction defects or 0.005 microcurie or greater of contamination, the source shall not be used or transferred as a sealed source or detector cell until it has been repaired, decontaminated and retested.

C. Each sealed source containing licensed material, other than hydrogen 3, with a half-life greater than 30 days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed 6 months except that each source designed for the purpose of emitting alpha particles shall be tested at intervals not to exceed 3 months.

D. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or detector cell or from the surfaces of the device in which the sealed source or detector cell is permanently or semipermanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

E. If the test required by Subsection A. or C. of this condition reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source or detector cell from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the date the leak test result is known with the U. S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety and Safeguards Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406, describing the equipment involved, the test results, and the corrective action taken.

14. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

15. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 37-02006-05
Docket or Reference number: 030-06046
Amendment No. 41

(Continued) CONDITIONS

16. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

17. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 2 years from the date of each inventory.

18. The licensee may transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material".

19. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 days for decay-in-storage before disposal in ordinary trash provided:

    A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

    B. Before disposal as normal waste, radioactive waste shall be surveyed to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.

20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

    A. Application dated January 16, 1984
    B. Letter dated December 4, 1987

For the U.S. Nuclear Regulatory Commission

Date 06 MAR 1988

By Original Signed By
John E. Glenn, Ph.D.
Nuclear Materials Safety and
Safeguards Branch, Region I
King of Prussia, Pennsylvania 19406

06 MAR 1988

License No. 37-02006-05
Docket No. 030-06046
Control No. 108192

General Electric Company
ATTN: Alfred W. Kobylinski, RSO
Space Division
Valley forge Space Center
P.O. Box 8555
Philadelphia, Pennsylvania 19101

Gentlemen:

Please find enclosed an amendment to your NRC Material License.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the Region I Material Licensing Section, (215) 337-5239, so that we can provide appropriate corrections and answers.

Please be advised that you must conduct your program involving licensed radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, please note the items in the enclosed, "Requirements for Materials Licensees."

Since serious consequences to employees and the public can result from failure to comply with NRC requirements, the NRC expects licensees to pay meticulous attention to detail and to achieve the high standard of compliance which the NRC expects of its licensees.

You will be periodically inspected by NRC. A fee may be charged for inspections in accordance with 10 CFR Part 170. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in prompt and vigorous enforcement action against you. This could include issuance of a notice of violation, or in case of serious violations, an imposition of a civil penalty or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C.

06 MAR 1988

We wish you success in operating a safe and effective licensed program.

Sincerely,

Original Signed By
John E. Glenn, Ph.D.

John E. Glenn, Ph.D., Chief
Nuclear Materials Safety Section B
Division of Radiation Safety
and Safeguards

Enclosures:
1. Amendment No. 41
2. Requirements for Materials Licensees

DRSS:RI
Glenn/mjh
2/3/88

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02/19/88

ML10

030-06046

GENERAL ELECTRIC

FEDERAL AND ELECTRONIC SYSTEMS DIVISION
GENERAL ELECTRIC COMPANY • VALLEY FORGE SPACE CENTER • P.O. BOX 8555 • PHILADELPHIA, PENNSYLVANIA 19101 • (215) 354-1000

December 4; 1987

U.S. Nuclear Regulatory Commission
Region 1
531 Park Avenue
King Of Prussia, Pa. 19406

Re. License No Sub-831 and License No. 37-02006-05
Docket No. 040-07334 Docket No. 030-06046
Control No. 104645

Dear Sir/Madam:

Please process an amendment to our source material license SUB-831 to incorporate the following changes:

1) Add our facility at 970 Pulaski Road, King Of Prussia, Pa. 19406 to the list of location where radioactive source material may be stored. A portion of this building will be used for storage only of raw stock magnesium thorium alloy (2% thorium).

2) Update the membership of our Ionizing Radiation Advisory Group to reflect the changes included on the attachment.

Please process an amendment to our byproduct material license 37-02006-05 to incorporate the following change:

1) Update the membership of our Ionizing Radiation Advisory Group to reflect the changes indicated on the attachment.

Also attached is a check for $240.00 to cover the cost of both amendments. If there are any questions concerning these requests, please contact the undersigned at (215) 354-1085.

Sincerely,

Alfred W. Kobylinski
Radiation Safety Officer

Copies: S.J. Mucha, M.D.
C.B. Chilton
D.M. Sternberg
J.T. Coombe
G.G. McErlane

RECEIVED JAN - 4 AM 8:45

Log 1
Remitter Jan 6
Check No. K 36838 ($240)
Amount $120 $ 10819
Fee Category 1K 3L
Type of Fee AM
Date Check Rec'd 1/4/88
Date Completed 1/11/88
By: A Kimberly

108192
12-14-87

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General Electric Company
License 37-02006-05
Amendment 12/87

IONIZING RADIATION ADVISORY GROUP

TRAINING AND EXPERIENCE

Prior to the start of any work with radioactive materials, all operations involving radioactive materials must be reviewed and approved by the Ionizing Radiation Advisory Group (IRAG).

The Current Members of IRAG are as follows:

Chairman:	S.J. Mucha, M.D.	Medical Director
Member:	C.B. Chilton	Mgr., Industrial Safety and Hygiene
Member:	D.M. Sternberg	Mgr., Electrical Systems Engineering
Secretary:	A.W. Kobylinski	Sr. Industrial Hygienist, Radiation Safety Officer

Resumes detailing training and experience with radioactive materials for each of the above individuals are attached.

General Electric Company
License 37-02006-05
Amendment 12/87

RESUME:

STEPHEN J. MUCHA, M.D., F.A.C.S.
MEDICAL DIRECTOR

A. Education: GYP

(b)(6) - B.S. Degree in Biology from Franklin & Marshall College Lancaster, Pa.

1956 - M.D. Degree from the University of Pennsylvania, School of Medicine, Philadelphia, Pa.

B. Post Graduate Training:

1956-1957	Internship rotating at U.S. Naval Hospital, Philadelphia, Pa.
1957-1961	General Surgical Residency, U.S. Naval Hospital, Philadelphia, Pa.
1961-1964	Assistant Chief of Surgery, U.S. Naval Hospital, Camp Lejeune, N.C.
1964-1967	Chief of Surgery, U.S. Naval Hospital, Roosevelt Roads, Puerto Rico.
1967-1971	Assistant Chief of Surgery, U.S. Naval Hospital, Philadelphia, Pa.
1971-1978	Chairman, Department of Surgery, Naval Regional Medical Center, Philadelphia, Pa.
1978-	Medical Director, General Electric Company, FESD, Philadelphia, Pa. Private Practice.

C. Memberships:

1971-1978	Chairman, Disaster Committee, Naval Regional Medical Center, Philadelphia, Pa.
1971-1978	Member, Radiation Committee, Naval Regional Medical Center, Philadelphia, Pa.
1978-1986	Member, Ionizing Radiation Advisory Group, General Electric Company, Philadelphia, Pa.
1987-	Chairman, Ionizing Radiation Advisory Group, General Electric Co., Philadelphia, Pa.

General Electric Company
License 37-02006-05
Amendment 12/87

RESUME:

CHARLES B. CHILTON, MANAGER
INDUSTRIAL SAFETY & HYGIENE

A. Education:

B.S. - Virginia Polytechnic Institute, Blacksburg, Va. - Agricultural Eng.
M.S. - Temple University, Philadelphia, Pa. - Industrial Hygiene

Certified Safety Professional - #1410
Registered Professional Engineer in Safety Engineering, State of Calif. - #676

B. Work Experience:

U. S. Army - 6 months active duty, 28 years active reserve, rank of Colonel. Taught/attended numerous chemical, biological, radiological (CBR) courses.

Factory Insurance Association - Fire Protection Engineer - 5 years

Celanese Corporation - Safety Supervisor - 5 years

Borg-Warner Corporation - Safety Manager - 1 year

General Electric Company - Safety Manager - 17 years

C. Member:

ASSE

NFPA

AIHA

Supervised HP activities 17 years.

Attended numerous HP short courses (U.S. Army, AIHA).

Completed 2 graduate level HP courses (Temple University).

General Electric Company
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Resume for: Daniel M. Sternberg

Professional Experience:

1983 - Present: Manager, Electronic Systems Engineering
Manager of a group of 17 very senior electrical systems engineers involved with all electronic aspects of strategic missile re-entry systems. Typical areas of responsibility include telemetry and tracking, electrical power and distribution, command and control, nuclear weapons safety, radar signal processing, test equipment and flight data analysis.

In addition to managerial responsibilities, I have served on a number of "Tiger Teams" charged with correcting a program experiencing technical, cost or schedule difficulties. I am also called upon to participate in the preparation and review of vital proposals responding to government RFPs.

1981 - 1983: Chief, Reactor Projects Branch
United States Nuclear Regulatory Commission Region, V Walnut Creek, California

Responsibility for management of inspection program at operational and construction activities, West Coast nuclear power plants. Included was overall branch budgeting, supervision of 2 supervisory, 20 senior technical and 5 administrative personnel, and long-range planning in Reactor Projects. Regional Telecommunications Coordinator and member, ADP Users Group.

1979 - 1981: Chief, Reactor Operations Section, USNRC - Region V

Management of inspection program at operating and pre-operational nuclear plants. Immediate supervisor for 10 Senior Reactor Inspectors and 3 clerical personnel. Position included recommending program changes, recruiting staff, providing oral and written testimony before government and professional bodies.

1974 - 1979: Reactor Inspector, USNRC - Region I,
King of Prussia, PA

Project Inspector for Boiling Water Reactors, planning program, conducting on-site inspections, and coordinating work of various specialists.

1969 - 1974: **Electrical Project Engineer**

General Electric Re-Entry and Environmental Division Philadelphia, Pennsylvania

Instrumentation and Communications Subsystem Engineer on Minuteman III Mk 12 Re-entry Vehicle program, responsible for design change support, telemetry data reduction, troubleshooting, and flight test support.

1964 - 1969: **Officer, United States Navy**

Completed Navy Nuclear Power School, Reactor Prototype - EOOW Qualification, and Officers Submarine School. Served aboard Polaris submarine as Communications, Sonar, Electrical, and Reactor Controls Officer during four patrols and an 18-month refueling overhaul.

Education: BSEE - (b)(6) University of Pennsylvania, Moore School of Electrical Engineering, Philadelphia, PA. Class Standing: 10 of 42.

ETC

General Electric Company
License 37-02006-05
Amendment 12/87

RESUME:

ALFRED W. KOBYLINSKI
SENIOR INDUSTRIAL HYGIENIST
RADIATION SAFETY OFFICER

A. Education:

M.S. - Occupational Health (Industrial Hygiene)
Drexel University, Philadelphia, Pa. - 1980
B.S. - Biology, Pennsylvania State University
University Park, Pa. (b)(6) E46

- Occupational & Environmental Radiation Protection, August 1985, Harvard School of Public Health, Boston, MA
- Short courses in Radiation Science, January 1987, Rutgers University, New Brunswick, N.J.
- Several additional professional development courses dealing with radiation safety presented by the American Industrial Hygiene Association and other professional organizations.

B. Work Experience:

1974-1976 Toxicology Technician
Ayerst Laboratories, Animal Health Division
Chazy, N.Y. 12921

Assisted in the operation of diagnostic x-ray equipment used for the examination of laboratory animals.

1976-1978 Research Technician
Physiology Department, Thomas Jefferson University
Philadelphia, Pa. 19107

Performed cardiovascular physiology studies utilizing radioactive tracer microspheres labelled with SR^{85}, Ce^{147} and I^{125}. Responsible for: safe handling and use of microspheres, conducting surveys to determine radiation levels in lab area, and for the determination of and safe disposal of all contaminated materials.

12/79- present Industrial Hygienist
General Electric Company, FESD
King of Prussia, Pa 19406

Under the direction of the Space Systems Division Ionizing Radiation Advisory Group, I have functioned as Radiation Safety Officer for the divisions 3 NRC licenses.

General Electric Company
License 37-02006-05
Amendment 12/87

ISOTOPE	MAXIMUM AMOUNT	LOCATION	DURATION	TYPE OF USE
Cerium-147	4 millicuries	Thomas Jefferson Univ.	1.5 years	Medical Research
Strontium-85	4 millicuries	Thomas Jefferson Univ.	1.5 years	Medical Research
Iodine-125	4 millicuries	Thomas Jefferson Univ.	1.5 years	Medical Research
Cobalt-60	16,000 curies	General Electric Co.	1980-present	Gamma Irradiation
Krypton-85	20 curies	General Electric Co.	1980-present	Leak Tests
Strontium-90	10 curies	General Electric Co.	1980-present	Irradiation Source
Plutonium-238	90 millicuries	General Electric Co.	1980-present	Calibration
Plutonium-239	microcuries	General Electric Co.	1980-present	Calibration
Cesium-137	100 millicuries	General Electric Co.	1980-present	Calibration Source
Americium-241	millicuries	General Electric Co.	1980-present	Research
Uranium-235	microcuries	General Electric Co.	1980-present	Research
Uranium-238	microcuries	General Electric Co.	1980-present	Research
Natural Thorium	100 kilograms	General Electric Co.	1980-present	Structural Material
Any Neutron activated radio-nuclide with atomic no. 3-83 inclusive	0.1 Ci	General Electric Co.	1980-present	Electronic Component Research

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BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LMS

PROGRAM CODE: 03610
STATUS CODE: 0
FEE CATEGORY: 1K 3L
EXP. DATE: 19870831
FEE COMMENTS: _____

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: GENERAL ELECTRIC CO.
RECEIVED DATE: 871214
DOCKET NO: 3006046
CONTROL NO.: 108192
LICENSE NO.: 37-02006-05
ACTION TYPE: AMENDMENT

2. FEE ATTACHED Ø
AMOUNT: _____
CHECK NO.: _____

3. COMMENTS

SIGNED _____
DATE 12/31/87

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED LT

1. FEE CATEGORY AND AMOUNT: 1K 3L $120

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

3. OTHER _____
_____

SIGNED S. Lemberle
DATE 1/11/88