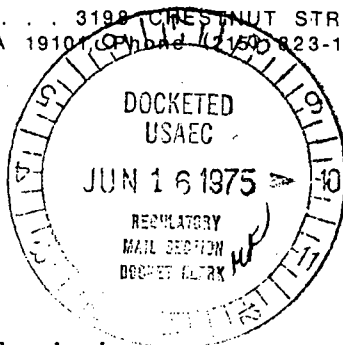


GENERAL ELECTRIC

RE-ENTRY AND
ENVIRONMENTAL
SYSTEMS DIVISION

GENERAL ELECTRIC COMPANY 3199 CHESTNUT STREET
PHILADELPHIA, PENNSYLVANIA 19104, Philadelphia 1-215-823-1000



June 10, 1975



United States Atomic Energy Commission
Sources and Special Nuclear Materials Branch
Division of Material Licensing
Washington, D.C. 20545

Dear Sirs:

Presently, GE/RESD's license allows possession both of 500 pounds of uranium (natural or depleted) in powder form and of 2,000 pounds of thoriated tungsten containing ThO₂ (2% by weight) in solid form.

I am requesting that GE/RESD's source material license (License No. SUB-831, Amendment No. 05; Docket No. 40-7344) be amended to allow possession of a third item, i.e. 100 pounds of depleted uranium metal alloy in solid form.

The uranium will be used in the shape and size in which it is received and will not be altered chemically or physically.

The uranium alloy is to be supplied by an ERDA contractor located in Los Alamos, New Mexico; GE/RESD will use the material as a mass simulator in tests relating to a major weapons system; the unaltered source material will be returned to the sender at the conclusion of these tests.

Your prompt review of this application for an amendment to GE/RESD's source material license is requested since the proposed date for the start of the aforementioned testing is in the first week of July.

If there are any questions, please call me on 1-215-823-3745/6.

Yours truly,

J. R. McFadden, Health Physicist
Industrial Safety Engineering

/ktd

Enclosures

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 6
FOIA- 2007-304



F-54

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR SOURCE MATERIAL LICENSE

Pursuant to the regulations in Title 10, Code of Federal Regulations, Chapter 1, Part 40, application is hereby made for a license to receive, possess, use, transfer, deliver or import into the United States, source material for the activity or activities described.

<p>1. (Check one)</p> <p><input type="checkbox"/> (a) New license</p> <p><input checked="" type="checkbox"/> (b) Amendment to License No. <u>SUB-831</u></p> <p><input type="checkbox"/> (c) Renewal of License No. _____</p> <p><input type="checkbox"/> (d) Previous License No. _____</p>	<p>2. NAME OF APPLICANT General Electric Company, <u>Re-entry & Environmental Systems Division</u></p> <p>3. PRINCIPAL BUSINESS ADDRESS 3198 Chestnut Street Philadelphia, Pa. 19101</p>																
<p>4. STATE THE ADDRESS(ES) AT WHICH SOURCE MATERIAL WILL BE POSSESSED OR USED</p> <p style="text-align: center;">See Attachment 1.</p>																	
<p>5. BUSINESS OR OCCUPATION Manufacturing and Missile Research</p>	<p>6. (a) IF APPLICANT IS AN INDIVIDUAL, STATE CITIZENSHIP n/a</p> <p>(b) AGE n/a</p>																
<p>7. DESCRIBE PURPOSE FOR WHICH SOURCE MATERIAL WILL BE USED</p> <p>Research, development and manufacturing programs related to the missile and space programs.</p>																	
<p>8. STATE THE TYPE OR TYPES, CHEMICAL FORM OR FORMS, AND QUANTITIES OF SOURCE MATERIAL YOU PROPOSE TO RECEIVE, POSSESS, USE, OR TRANSFER UNDER THE LICENSE</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;">(a) TYPE</th> <th style="width:25%;">(b) CHEMICAL FORM</th> <th style="width:25%;">(c) PHYSICAL FORM (Including % U or Th.)</th> <th style="width:30%;">(d) MAXIMUM AMOUNT AT ANY ONE TIME (in pounds)</th> </tr> </thead> <tbody> <tr> <td>NATURAL URANIUM</td> <td></td> <td></td> <td></td> </tr> <tr> <td>URANIUM DEPLETED IN THE U-235 ISOTOPE</td> <td>Uranium Metal Alloy</td> <td>Solid Metal (94%)</td> <td>107</td> </tr> <tr> <td>THORIUM (ISOTOPE)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(e) MAXIMUM TOTAL QUANTITY OF SOURCE MATERIAL YOU WILL HAVE ON HAND AT ANY TIME (in pounds) 100</p>		(a) TYPE	(b) CHEMICAL FORM	(c) PHYSICAL FORM (Including % U or Th.)	(d) MAXIMUM AMOUNT AT ANY ONE TIME (in pounds)	NATURAL URANIUM				URANIUM DEPLETED IN THE U-235 ISOTOPE	Uranium Metal Alloy	Solid Metal (94%)	107	THORIUM (ISOTOPE)			
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<p>9. DESCRIBE THE CHEMICAL, PHYSICAL, METALLURGICAL, OR NUCLEAR PROCESS OR PROCESSES IN WHICH THE SOURCE MATERIAL WILL BE USED, INDICATING THE MAXIMUM AMOUNT OF SOURCE MATERIAL INVOLVED IN EACH PROCESS AT ANY ONE TIME, AND PROVIDING A THOROUGH EVALUATION OF THE POTENTIAL RADIATION HAZARDS ASSOCIATED WITH EACH STEP OF THOSE PROCESSES.</p> <p style="text-align: center;">See Attachment 2.</p>																	
<p>10. DESCRIBE THE MINIMUM TECHNICAL QUALIFICATIONS INCLUDING TRAINING AND EXPERIENCE THAT WILL BE REQUIRED OF APPLICANT'S SUPERVISORY PERSONNEL INCLUDING PERSON RESPONSIBLE FOR RADIATION SAFETY PROGRAM (OR OF APPLICANT IF APPLICANT IS AN INDIVIDUAL).</p> <p style="text-align: center;">See Attachment 3.</p>																	
<p>11. DESCRIBE THE EQUIPMENT AND FACILITIES WHICH WILL BE USED TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE OR PROPERTY AND RELATE THE USE OF THE EQUIPMENT AND FACILITIES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (a) RADIATION DETECTION AND RELATED INSTRUMENTS (including film badges, dosimeters, counters, air sampling, and other survey equipment as appropriate. The description of radiation detection instruments should include the instrument characteristics such as type of radiation detected, window thickness, and the range(s) of each instrument).</p> <p style="text-align: center;">See Attachment 4.</p>																	
<p>(b) METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED IN (a) ABOVE, INCLUDING AIR SAMPLING EQUIPMENT (for film badges, specify method of calibrating and processing, or name supplier).</p> <p style="text-align: center;">See Attachment 5.</p>																	

11(c). VENTILATION EQUIPMENT WHICH WILL BE USED IN OPERATIONS WHICH PRODUCE DUST, FUMES, MISTS, OR GASES, INCLUDING PLAN VIEW SHOWING TYPE AND LOCATION OF HOOD AND FILTERS, MINIMUM VELOCITIES MAINTAINED AT HOOD OPENINGS AND PROCEDURES FOR TESTING SUCH EQUIPMENT.

N/a

12. DESCRIBE PROPOSED PROCEDURES TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE AND PROPERTY AND RELATE THESE PROCEDURES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (a) SAFETY FEATURES AND PROCEDURES TO AVOID NONNUCLEAR ACCIDENTS, SUCH AS FIRE, EXPLOSION, ETC., IN SOURCE MATERIAL STORAGE AND PROCESSING AREAS.

See Attachment 2.

(b) EMERGENCY PROCEDURES IN THE EVENT OF ACCIDENTS WHICH MIGHT INVOLVE SOURCE MATERIAL.

See Attachment 2.

(c) DETAILED DESCRIPTION OF RADIATION SURVEY PROGRAM AND PROCEDURES.

See Attachment 2.

13. WASTE PRODUCTS: *If none will be generated, state "None" opposite (a), below. If waste products will be generated, check here and explain on a supplemental sheet:*

- (a) Quantity and type of radioactive waste that will be generated. NONE
- (b) Detailed procedures for waste disposal.

14. IF PRODUCTS FOR DISTRIBUTION TO THE GENERAL PUBLIC UNDER AN EXEMPTION CONTAINED IN 10 CFR 40 ARE TO BE MANUFACTURED, USE A SUPPLEMENTAL SHEET TO FURNISH A DETAILED DESCRIPTION OF THE PRODUCT, INCLUDING:

- (a) PERCENT SOURCE MATERIAL IN THE PRODUCT AND ITS LOCATION IN THE PRODUCT.
- (b) PHYSICAL DESCRIPTION OF THE PRODUCT INCLUDING CHARACTERISTICS, IF ANY, THAT WILL PREVENT INHALATION OR INGESTION OF SOURCE MATERIAL THAT MIGHT BE SEPARATED FROM THE PRODUCT.
- (c) BETA AND BETA PLUS GAMMA RADIATION LEVELS (*Specify instrument used, date of calibration and calibration technique used*) AT THE SURFACE OF THE PRODUCT AND AT 12 INCHES.
- (d) METHOD OF ASSURING THAT SOURCE MATERIAL CANNOT BE DISASSOCIATED FROM THE MANUFACTURED PRODUCT.

CERTIFICATE

(This item must be completed by applicant)

15. *The applicant, and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 40, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.*

General Electric Company, RESD

(Applicant named in Item 2)

Dated

6-10-75

BY:

J. R. McFadden

(Print or type name under signature)

J. R. McFadden

Health Physicist

(Title of certifying official authorized to act on behalf of the applicant)

WARNING: 18 U.S.C. Section 1001; Act of June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

ATTACHMENT 1

4. Authorized Places of Use: The licensee's facilities at:
- a. 3198 Chestnut Street, Philadelphia, Pa.
 - b. D and Luzerne Streets, Philadelphia, Pa.
 - c. Morgantown Test Facility, Elverson, Pa.
 - d. STC Building 100, Goddard Boulevard, King of Prussia, Pa.
 - e. CC&F Building 9, Fifth Avenue, King of Prussia, Pa.
 - f. Vandenberg Air Force Base, California

ATTACHMENT 2

9. Radiological Health Procedures

- a. All programs must be reviewed and approved by the Ionizing Radiation Advisory Group prior to the start of any work with radioactive materials.
- b. Receiving - All radioactive materials, including uranium should be marked with an appropriate shipping tag. Receiving segregates all radioactive materials upon arrival and notifies the Safety Office. Safety takes a radiation and contamination survey before delivery to the user.
- c. Storage - Radioactive materials must be stored in a locked, properly posted room or locker which has been approved by the Health Physicist. Periodic contamination surveys are taken of the storage areas.
- d. Use - This material will be used as a mass simulator. The uranium metal alloy will be received in the shape and size required for its intended use; thus, GE/RESO will not perform any operations on this material which will alter it physically or chemically; some handling will be required, and gloves will be worn during operations requiring handling. Fifty (50) pounds of the uranium metal alloy is the maximum which will be used at any one time.
- e. Shipping - All radioactive materials, including uranium, should be marked with an appropriate shipping tag before shipment. Safety must take a radiation and contamination survey to assure all radiological shipping regulations are met.
- f. All personnel actively engaged in work procedures with uranium should be trained in the problems involved when working with radioactive materials.

EMERGENCY PROCEDURE:

- A. An emergency is defined as a fire involving the spread of uranium.
- B. The immediate response of all personnel in the area is to hold their breath and leave the room.
- C. The Health Physicist or Safety Office should be called for assistance.
- D. While waiting for assistance, all involved personnel should:
 1. Limit the spread of uranium to the room (i.e. close all doors, etc.)
 2. Remain in one area to limit spread of contamination.

ATTACHMENT 2

EMERGENCY PROCEDURE (Continued):

E. The Health Physicist or his designee will direct all subsequent operations. He will:

1. Survey the area and evaluate the extent of the emergency.
2. Survey all persons involved.
3. Supervise decontamination of all personnel, if necessary.
4. Supervise decontamination of the room.

ATTACHMENT 3

1. The manager of the component using radioactive materials must be approved by the Ionizing Radiation Advisory Group (IRAG). Members of the IRAG include:

Chairman: C. B. Chilton, Manager - Industrial Safety Engineering

Secretary: J. R. McFadden, Health Physicist

Member: J. R. Ficke, M.D., Medical Director

Supervisory personnel and radiation workers receive a basic course in radiological health to inform them of the biological hazards associated with ionizing radiation and the protective measures to be taken to reduce their exposure.

The person responsible for the Radiation Safety Program is the Health Physicist, J. R. McFadden. His resume is enclosed.

2. Personnel monitoring devices are supplied by Teledyne - Isotopes Co., 50 Van Buren Avenue, Westwood, New Jersey. This is a TLD type service.
3. Waste disposal services are supplied by Radiological Service Co., 50 Van Buren Avenue, Westwood, New Jersey. (A division of Teledyne-Isotopes).

RESUME

JOHN R. McFADDEN

A. EDUCATION:

PH.D. Purdue University, W. Laf., Ind., 1967 - 1971;
Major in Bionucleonics

MS Temple University, Phila., Pa., 1966 - 1967;
Major in Radiological Health

BA St. Joseph's College, Phila., Pa., (b)(6) *2/4*
Major in Biology

B. WORK EXPERIENCE

7/72 to 10/72: Public Health trainee in radiological health unit of Philadelphia Health Department. Primary responsibilities included conducting inspection of diagnostic x-ray machines and representing city of Philadelphia during AEC License inspections:

11/72 to 12/73: Medical Physicist for Nuclear Radiation Consultants, New Haven, Conn. Consultation in medical physics provided to hospitals in Conn. and Mass.

1/74 to Present: Health Physicist for General Electric Company, RESD. Primary responsibilities are to insure compliance with all applicable radiation control regulations and to provide technical assistance in the handling of various sources.

RESUME

JOHN R. McFADDEN

C. EXPERIENCE WITH RADIATION

ISOTOPE	MAXIMUM AMOUNT	EMPLOYER	DURATION	TYPE OF USE
Co-60	5000 Ci	N.R. Consultants	1 year	Radiation Therapy
P-32	0.02 Ci	"	"	"
Ra-226	0.1 Ci	"	"	"
Au-109	0.002 Ci	"	"	Nuclear Medicine (diagnosis)
Se-75	0.002 Ci	"	"	"
Hg-197	0.002 Ci	"	"	"
I-131	0.001 Ci	"	"	"
Mo-99	0.05 Ci	"	"	"
I-125	0.02 Ci	"	"	In Vitro Research
U-238	50 lbs.	"	"	Shielding
Any Byproduct Material	3 Ci	GE/RESO	1 mo.	Measurements

ATTACHMENT 4

TYPE OF INSTRUMENT	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY	WINDOW THICKNESS	USE
1. Victoreen Model 440	1	Beta-Gamma	0-300 mr/hr	1 mg/cm ²	Surveying & measuring
2. Eberline Model E-120	1	Beta-Gamma	0-50 mr/hr	30 mg/cm ²	Measuring
3. Wm. B. Johnson & Ass. Model ASP-2A Alpha scintillation probe on Model GSM-5 survey meter	1	Alpha	0 to 50,000 cpm		Surveying & measuring smears and air samples
4. Gast Air Pump (Whatman #41 filter)	2				Air sample counted on alpha Scin- tillation probe

ATTACHMENT 5

1. The Victoreen model 440, Eberline Model E-120 are calibrated using a technical operations, 15 mc Co⁶⁰ calibration kit. The instruments are calibrated yearly and spot checked as needed.
2. The Johnson's Assc. model ASP-2A Alpha scintillation probe on the model GSM-5 survey meter is calibrated using a depleted uranium standard and/or a thorium ²³² standard, whenever the probe is used.
3. Thermoluminescent dosimeters are supplied by Teledyne-Isotopes on a quarterly basis.