

UNITED STATES ATOMIC ENERGY COMMISSION
APPLICATION FOR BYPRODUCT MATERIAL LICENSE

Form approved
 Budget Bureau, No. 38-4027

INSTRUCTIONS.— Complete Items 1 through 16 if this is an initial application or an application for renewal of a license. Information contained in applications filed with the Commission with respect to Items 8 through 15 may be incorporated by reference provided references are clear and specific. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail two copies to: U.S. Atomic Energy Commission, Washington, D.C., 20545, Attention: Isotopes Branch, Division of Materials Licensing. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the licensee is subject to Title 10, Code of Federal Regulations, Part 20.

<p>1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital, person, etc. Include ZIP Code.)</p> <p>Waltham Compass Corporation 601 Main Street Waltham, Massachusetts</p>	<p>(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED (If different from 1 (a). Include ZIP Code.)</p> <p>Waltham Compass Corporation 601 Main Street Waltham, Massachusetts</p>
<p>2. DEPARTMENT TO USE BYPRODUCT MATERIAL</p> <p>See 1a</p>	<p>3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.)</p> <p>None</p>
<p>4. INDIVIDUAL USER(S). (Name and title of individual(s) who will use or directly supervise use of byproduct material. Give training and experience in Items 8 and 9.)</p> <p>a) Fred Marcell b) Benjamin Pollack</p>	<p>5. RADIATION PROTECTION OFFICER (Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in Items 8 and 9.)</p> <p>See 4a</p>
<p>6. (a) BYPRODUCT MATERIAL (Elements and mass number of each)</p> <p>Promethium¹⁴⁷</p>	<p>(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND/OR PHYSICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME (If sealed source(s) also state name of manufacturer, model number, number of sources and maximum activity per source.)</p> <p>Sealed sources in the form of compass cards and compass crystals. Each card and crystal to have a maximum of 0.5 millicuries of activity on it as 3M Co. Model 1A2A Radioluminous paint. Maximum number of compass cards and compass crystals in possession at any one time is 5000 of each.</p>

7. DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If byproduct material is for human use, supplement A (Form AEC-313a) must be completed in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in which the source will be stored and/or used.)

See attached sheet

Date: _____

TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 4 (Use supplemental sheets if necessary)

8. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)		Yes	No
			Yes	No		
a. Principles and practices of radiation protection	Tracerlab, a Division of Laboratory for Electronics, Inc., 1601 Trapelo Road, Waltham, Mass.	3 days	Yes	No	(Yes)	No
b. Radioactivity measurement standardization and monitoring techniques and instruments	and Prof. M. Bolton of Massachusetts Institute of Technology, who has been retained as our Radiological Safety Officer.		Yes	No	Yes	No
c. Mathematics and calculations basic to the use and measurement of radioactivity	Prof. M. Bolton and Tracerlab, a Division of Laboratory for Electronics, Inc., 1601 Trapelo Road, Waltham, Mass.	2 days	Yes	No	(Yes)	No
d. Biological effects of radiation			Yes	No	(Yes)	No

9. EXPERIENCE WITH RADIATION (Actual use of radioisotopes or equivalent experience)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
See Commonwealth of Massachusetts certification attached				

10. RADIATION DETECTION INSTRUMENTS (Use supplemental sheets if necessary)

TYPE OF INSTRUMENTS (Include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm ²)	USE (Monitoring, surveying, measuring)
See Commonwealth of Massachusetts certification attached					

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED (For film badges, specify method of calibrating and processing, or name of supplier)

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS IN DUPLICATE

13. FACILITIES AND EQUIPMENT. Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached. (Circle answer) Yes No

14. RADIATION PROTECTION PROGRAM. Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak tests, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source. See attached sheet.

15. WASTE DISPOSAL. If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved. See attached sheet.

CERTIFICATE (This item must be completed by applicant)

16. THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE APPLICANT NAMED IN ITEM 1, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 15, CODE OF FEDERAL REGULATIONS, PART 30, AND THAT ALL INFORMATION CONTAINED HEREIN, INCLUDING ANY SUPPLEMENTS ATTACHED HERETO, IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

Waltham Compass Corporation

Applicant named in item 1

Date June 1, 1968

By Benjamin D. Pollack
Clerk (Secretary)

Title of certifying official

THE JOB
(by department)
FO
(CO)
No
(Yes)
No
Yes
No

Question #7

These parts are to be used in the assembly of radioluminous compasses. As the parts are received from the manufacturer they will be inspected by one of the two individual users and stored until needed in a locked metal cabinet. The cabinet shall be marked "Caution - Radioactive Material" at all times that the luminous parts are stored therein. As they are needed for production, the parts will be removed from the cabinet by one of the two individual users.

At the end of the work day, all unassembled parts and assembled compasses that are not to be shipped immediately, will be returned to the cabinet.

Any damaged or defective parts will be stored in a plastic bag and disposed of by a company licensed to dispose of radioactive material. A maximum of 50 millicuries of radioactivity will be placed in any one bag.

The assembled compasses will be marked according to the end users requirements and will be shipped only to users who possess a valid AEC or agreement state license.

In addition, a maximum of 10 assembled compasses, under the personal control of Benjamin Pollack, will be carried to various parts of the United States for demonstration purposes.

Question #14

All personnel will be told that they are working with radioactive material. All personnel handling the unassembled parts will wear rubber gloves on both hands. All assembly of the parts will be done using soft-tipped tweezers.

Any parts damaged during assembly will be disposed of as radioactive waste.

Before leaving the work area, and before eating, drinking or smoking, all assembly workers will wash their hands and check them under an ultraviolet light. Any contamination remaining will be immediately cleaned off with a paper cloth or towel and disposed of as radioactive waste. Since contamination levels are expected to be extremely low, hand washing water will be dumped to the sanitary sewer.

Question #14 (cont.)

At the end of the work day, after all radioluminous parts have been removed from the work area, the work area will be wiped with a damp cloth or towel. In addition, the work area will be surveyed with an ultraviolet light and any contamination found will be immediately cleaned up and disposed of as radioactive waste.

The workers assembling these parts have had extensive experience with radium activated luminous materials and hence, are somewhat familiar with radioactive materials. The workers have also been inspected several times by the Massachusetts State Board of Health, in regard to their working with radium activated compass parts.

Question #15

All radioactive waste will be returned to the manufacturer or will be shipped to a company having a valid license allowing it to dispose of radioactive material.

REGISTRATION OF IONIZING RADIATION SOURCES

1. Employer Name Waltham Compass Corporation and Fred Marcell d/b/a Waltham Compass
Company, both located at:
 Address Waltham, Massachusetts

2. Confines of Installation _____

3. RADIATION PRODUCING EQUIPMENT (Use Additional Sheets if Necessary)

TYPE*	NUMBER		DESCRIPTION OF EQUIPMENT (SIZE, RATING, MFR., GENERAL LOCATION)	PURPOSE OR USE
	FIXED	MOBILE		

*Specify if beta ray gauge, high voltage equipment, industrial x-ray, nuclear reactor, particle accelerator, shoe fluoroscope, static eliminator, etc.

4. RADIOACTIVE MATERIALS (Use Additional Sheets if Necessary)

TYPE*	NUMBER		DESCRIPTION OF MATERIAL*	QUANTITY USED		PURPOSE OR USE
	FIXED	MOBILE		ANNUALLY	ON HAND	
32 ²²⁶ Ra			Radium Paint	100 grams	10 grams	Compass Cards



*Indicate if sealed or unsealed, source strength, location, etc.

5. RADIATION PROTECTION OFFICER

Name and Address Waltham Compass Corporation
 Qualifications Waltham Compass Company
 Date June 25, 1963
 Signature of Employer or Radiation Protection Officer _____