FORM NRC-313 I (1-79) 10 CFR 30

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE
INDUSTRIAL

See attached instructions for details.

Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.

1. APPLICATION FOR: *(Check and/or complete as appropriate)*

	a. NEW LICENSE
	b. AMENDMENT TO: LICENSE NUMBER
X	c. RENEWAL OF: LICENSE NUMBER 20-12943-01

2. APPLICANT'S NAME *(Institution, firm, person, etc.)*

Waltham Compass Corporation

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION

3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION

Benjamin D. Pollack

TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
617 893 6996

4. APPLICANT'S MAILING ADDRESS *(Include Zip Code)*

609 Main Street
Waltham, Mass. 02154

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED *(Include Zip Code)*

609 Main Street
Waltham, Mass. 02154

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL
(See Items 16 and 17 for required training and experience of each individual named below)

	FULL NAME	TITLE
a.	Benjamin D. Pollack	Corp. Clerk (Secretary)
b.	Fred Marcell	Radiation Safety Officer
c.		

7. RADIATION PROTECTION OFFICER

Fred Marcell

Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.

8. LICENSED MATERIAL

LINE NO.	A ELEMENT AND MASS NUMBER	B CHEMICAL AND/OR PHYSICAL FORM	C NAME OF MANUFACTURER AND MODEL NUMBER *(If Sealed Source)*	D MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME
(1)	Promethium – 147	Pre-painted compass components.	3M Model 1A2A luminous pre-painted compass components.	Not to exceed 2 millicuries per component and 10,000 components (20 curies).
(2)				
(3)				
(4)				

DESCRIBE USE OF LICENSED MATERIAL

E

(1) Pre-painted compass components will be purchased from 3M corporation and

(2) assembled and tested at the above address. The compasses are assembled and sold under a Dept. of the Defence contract. Military Specification MIL-C-6235D

(3) is used to satisfy the contract. A copy is attached. The compasses are only sold to Agencies of the Department of Defence. The compasses are used as a

9. STORAGE OF SEALED SOURCES

LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED. A.	NAME OF MANUFACTURER B.	MODEL NUMBER C.
(1)			
(2)			
(3)			
(4)			

10. RADIATION DETECTION INSTRUMENTS

LINE NO.	TYPE OF INSTRUMENT A	MANUFACTURER'S NAME B	MODEL NUMBER C	NUMBER AVAILABLE D	RADIATION DETECTED (alpha, beta, gamma, neutron) E	SENSITIVITY RANGE (milliroentgens/hour or counts/minute) F
(1)	End window GM	Eberline	E 120	1	beta,gamma	0 to 50 mr/hr.
(2)						
(3)						
(4)						

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☒ a. CALIBRATED BY SERVICE COMPANY

NAME, ADDRESS, AND FREQUENCY

Calibrated by our consultant Murray M. Bolton at M.I.T. Cambridge, Mass.

☐ b. CALIBRATED BY APPLICANT

Attach a separate sheet describing method, frequency and standards used for calibrating instruments.

12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A	SUPPLIER (Service Company) B	EXCHANGE FREQUENCY C
☒ (1) FILM BADGE (wrist)	Landauer	☐ MONTHLY
☐ (2) THERMOLUMINESCENCE DOSIMETER (TLD)		☐ QUARTERLY
☐ (3) OTHER (Specify):		☒ OTHER (Specify): when assembling compasses (monthly)

13. FACILITIES AND EQUIPMENT (Check were appropriate and attach annotated sketch(es) and description(s).

☐ a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC.

☒ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC.

☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.

☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

Interex Corp. Natick, Mass.

b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE.

INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

15. RADIATION PROTECTION PROGRAM. Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures *(if needed)*, day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.

16. FORMAL TRAINING IN RADIATION SAFETY. Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.

a. Principles and practices of radiation protection.

b. Radioactivity measurement standardization and monitoring techniques and instruments.

c. Mathematics and calculations basic to the use and measurement of radioactivity.

d. Biological effects of radiation.

17. EXPERIENCE. Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

18. CERTIFICATE

(This item must be completed by applicant)

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 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

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.

a. LICENSE FEE REQUIRED *(See Section 170.31, 10 CFR 170)*	b. CERTIFYING OFFICIAL *(Signature)*
	c. NAME *(Type or print)* Benjamin D. Pollack
(1) LICENSE FEE CATEGORY: 3A	d. TITLE Corporate Clerk (Secretary)
	e. DATE

Items 16 &17

Mr..Fred Marcell and Mr. Benjamin Pollack each have more than 20 years experience in the production of compasses containing radium and promethium-147. In addition they have attended training sessions conducted by our consultant Mr. Murray M. Bolton, Jr. the Radiation Protection Officer at M.I.T. The following subject matter was covered at these training sessions:

Principles and practices of radiation protection.

Monitoring techniques.

Basic units.

Biological effects of radiation.

Regulations - State & Federal.

Although radium is no longer used at this facility,many years experience was gained in applying radium paint to compass parts and experience in handling radioactive materials.

Item 15 - Radiation Protection Program

Each shipment of compass parts is checked for contamination by our consultant Mr. Murray H. Bolton, Jr. If the shipment is found free of contamination, the units are released and the compass parts are assembled under the direct supervision of Mr. Fred Marcell. At the end of each work day, the work area is surveyed with the Eberline survey instrument (E-120 with HP 190 detector). In addition, monthly wipe tests are performed on the work area by our consultant. Wipes are taken only when promethium-147 is being handled. The wipe tests are counted at M.I.T. using a gas flow proportional counter that is calibrated with N.B.S. certified standards. It is also required that 1 % of the assembled compasses be wipe tested. Random samples are selected prior to packaging for shipment. Any compass or area found to be contaminated (greater than 25 dpm/wipe) is decontaminated to background levels.

If there is a need for bioassays, our consultant can and will supply this service.

All compass parts containing promethium-147 are stored in a locked cabinet. At the end of the work day, all promethium parts, not assembled, are returned to the storage cabinet. The compass parts containing promethium-147 are not handled with the fingers. Forceps are used.

Our operations are small. Mr. Marcell plus two additional employees assemble the compasses. The employees have been with Waltham Compass Corp. for many years and have received training in Radiation Safety from our consultant. If additional employees are required, they will receive a minimum of 5 hrs. training by our consultant prior to working with the promethium-147.