

<b>FORM NRC-313 I</b> (3-80) 10 CFR 30		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>	
<b>APPLICATION FOR BYPRODUCT MATERIAL LICENSE INDUSTRIAL</b>		<b>1. APPLICATION FOR:</b> <i>(Check and/or complete as appropriate)</i>	
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.		a. NEW LICENSE	
		b. AMENDMENT TO: LICENSE NUMBER	
		c. RENEWAL OF: LICENSE NUMBER	
<b>2. APPLICANT'S NAME</b> <i>(Institution, firm, person, etc.)</i> ADVANCE CIRCUITS, INC.  TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION 612 935 5695		<b>3. NAME AND TITLE OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION</b> JOSEPH N. STATHOULIEH  TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION 612 935 5695	
<b>4. APPLICANT'S MAILING ADDRESS</b> <i>(Include Zip Code)</i> <i>(Address to which NRC correspondence, notices, bulletins, etc., should be sent.)</i> 560 16 <sup>th</sup> AVE. SOUTH HOPKINS, MN 55343		<b>5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED</b> <i>(Include Zip Code)</i> 560 16 <sup>th</sup> AVE SOUTH HOPKINS, MN 55343	
(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)			
<b>6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL</b> <i>(See Items 16 and 17 for required training and experience of each individual named below)</i>			
FULL NAME		TITLE	
a. HELEN GARDNER		SUPERVISOR	
b. JOHN LUNDQUIST		GROUP LEADER	
c.			
7. RADIATION PROTECTION OFFICER		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.	ELEMENT AND MASS NUMBER  A	CHEMICAL AND/OR PHYSICAL FORM  B	NAME OF MANUFACTURER AND MODEL NUMBER <i>(If Sealed Source)</i>  C
			MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTI- VITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME  D
(1)	Iodine-125	Sealed solid source.	500mCi maximum per device.
(2)			1000mCi total.
(3)			Sealed sources model nos. ;
(4)			Amersham IMC.P2 or AECL C.324
DESCRIBE USE OF LICENSED MATERIAL E			
(1)	The radioactive material will be used in the Lixiscope for		
(2)	the x-ray examination of electronic multi-layer printed circuit		
(3)	boards.		
(4)			

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### 9. STORAGE OF SEALED SOURCES

LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED.	NAME OF MANUFACTURER	MODEL NUMBER
	A.	B.	C.
(1)	Lixiscope with attached source holder heads in carrying case.	Lixi, Inc.	LS-80-X LS-82-X
(2)			
(3)			
(4)			

### 10. RADIATION DETECTION INSTRUMENTS

LINE NO.	TYPE OF INSTRUMENT	MANUFACTURER'S NAME	MODEL NUMBER	NUMBER AVAILABLE	RADIATION DETECTED (alpha, beta, gamma, neutron)	SENSITIVITY RANGE (milliroentgens/hour or counts/minute)
	A	B	C	D	E	F
(1)	If required:					
(2)	G-M meter	Solar Electronics	Monitor-4	1	alpha, beta gamma, x-ray	0-50 mR/hr.
(3)						
(4)						

### 11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

<input checked="" type="checkbox"/> <b>a. CALIBRATED BY SERVICE COMPANY</b> NAME, ADDRESS, AND FREQUENCY Returned to Glenbrook to have calibrated	<input type="checkbox"/> <b>b. CALIBRATED BY APPLICANT</b> <i>Attach a separate sheet describing method, frequency and standards used for calibrating instruments.</i>
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### 12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A	SUPPLIER (Service Company) B	EXCHANGE FREQUENCY C
<input type="checkbox"/> (1) FILM BADGE <input checked="" type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD) ring badge <input type="checkbox"/> (3) OTHER (Specify): _____	R.S. Landauer, Jr. & Co.	<input checked="" type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input type="checkbox"/> OTHER (Specify): _____

### 13. FACILITIES AND EQUIPMENT (Check where 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  
 Return to Lixi, Inc. for disposal.
- 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:

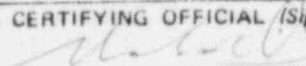
15. **RADIATION PROTECTION PROGRAM.** Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures (if needed), day-to-day general safety instruction to be followed, 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) <div style="text-align: right;">\$ 60 <sup>00</sup></div>	b. CERTIFYING OFFICIAL (Signature) 
(1) LICENSE FEE CATEGORY: 3P	c. NAME (Type or print) JOSEPH N. STARNOULIS
(2) LICENSE FEE ENCLOSED:	d. TITLE MANAGER, PERSONNEL SAFETY e. DATE 6/3/85

FORMAL TRAINING IN RADIATION SAFETY AND EXPERIENCE

Ref: NRC 3131 - Items 16 and 17

Item 16 - Training

This is to certify that the following individuals have attended the Lixiscope Training Course in accordance with the course descriptions on file with the Nuclear Regulatory Commission:

Names (Type or Print)	Signatures
<u>John Lundquist</u>	<u>John Lundquist</u>
<u>JOSEPH STAMBOULIEH</u>	<u>[Signature]</u>
<u>HELEN GARDNER</u>	<u>_____</u>

Company Name Advance Circuits  
Address 560 16<sup>th</sup> Ave S.  
City, State, Zip Hopkins, Mn 55343  
Telephone # 935-5695

This training was completed on 5-16-85 (Date)

Item 17 - Experience

A brief resume is attached for each individual to be covered under items 6 and 7 on form NRC 3131. This also certifies that such individual(s) have personally operated a working Lixiscope, under supervision, in the aforementioned course.

The applicant and any instructor executing this certificate on behalf of the 2 person(s) listed above, certify that this document is prepared in conformity with Title 10, Code of Federal Regulations, and that all information contained herein 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.

Certification by:  
The Glenbrook Company, Inc.  
Morris Plains, New Jersey 07950  
NRC Lic. No 29-21464-01

Instructor Gilbert Zweig  
(type or print)  
Gilbert Zweig  
(signature)  
Date 5-16-85

CONTROL NO. 7 913 5

job description Supervisor Helen

- drill- ① Set up jobs with <sup>correct</sup> tape, drill Card, film, mylar  
 Rout that panel  
 Bevel ② Check registration on 1st load to assure operator  
 Plasma the panels they are drilling are good.  
 ③ Handle any ~~discipline~~ discipline problems  
 ④ Give employee reviews  
 ⑤ Do production paper work  
 ⑥ Keep employee attendance records  
 ⑦ Keep machines in top working order  
 ⑧ Keep room neat, clean, and organized  
 ⑨ Keep area safe.  
 ⑩ Schedule overtime when needed.

- Rout ① Help operator run good parts, or find out  
 why their parts are not good & get them on  
 the right track to running good parts.  
 ② Keep area, clean, safe, and organized.

- ③ always try to improve methods and speed  
 ④ up production

⇒ Group Leader - John Lundquist

John works 2nd Shift and helps operators  
 set up jobs and tries to avert any scrap being  
 made. - if there is problem - he makes the  
~~decision~~ decision if it should wait until morning  
 Keeps things moving in area.