2-7-84

NRC Form 313 I
(12-81)
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
✓	c. RENEWAL OF: LICENSE NUMBER 24-12099-01

2. APPLICANT'S NAME *(Institution, firm, person, etc.)*
Missouri Division of Health
Section of Laboratory Services
TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
314-751-3179

3. NAME AND TITLE OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION
R. H. Gnaedinger
TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
314-751-3179

4. APPLICANT'S MAILING ADDRESS *(Include Zip Code)* *(Address to which NRC correspondence, notices, bulletins, etc., should be sent.)*
307 W. McCarty
Jefferson City, MO 65101

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED *(Include Zip Code)*
Same as #4

(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.	Richard H. Gnaedinger, Ph.D.	Chief Chemist
b.		
c.		

7. RADIATION PROTECTION OFFICER
Richard H. Gnaedinger

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 (If Sealed Source) (C)	MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME (D)
(1)	Nickel-63	Foil in a	Tracor 111019-0001	3 sources of 15
(2)		detector cell for		millicuries each
(3)		gas chromatograph		
(4)				

DESCRIBE USE OF LICENSED MATERIAL (E)

(1)	Used for sample analysis in a gas chromatograph,
(2)	Electron capture detector
(3)	
(4)	

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REG3 LIC30
24-12099-01 PDR

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Date 2/23/84
Log Feb 18 111
By Cap
Orig. To P.HH
Action Compl. 2/28/84

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FEE EXEMPT

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rec. 2/23/84

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12016

LEE EXEMPT

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)	*Source housing in gas chromatographs (2)*	*Tracor*	*550*
(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)	*N.A.*					
(2)						
(3)						
(4)						

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☐ a. CALIBRATED BY SERVICE COMPANY

NAME, ADDRESS, AND FREQUENCY

N.A.

☐ b. CALIBRATED BY APPLICANT

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

N.A.

12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A	SUPPLIER (Service Company) B	EXCHANGE FREQUENCY C
☑ (1) FILM BADGE	*Siemens*	☑ MONTHLY
☐ (2) THERMOLUMINESCENCE DOSIMETER *(TLD)*		☐ QUARTERLY
☐ (3) OTHER *(Specify)*: _____		☐ OTHER *(Specify)*:

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

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.

Sealed sources will be returned to manufacturer for disposal of radioactive foil.

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.

Tracor Wipe Test Kit #111131-0001

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. *See Attachment*

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.

See attachment

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)* E R Spurrier, Dr PH
None required	c. NAME *(Type or print)* E. R. Spurrier, Dr. P.H., Director
(1) LICENSE FEE CATEGORY:	d. TITLE Section of Laboratory Services
(2) LICENSE FEE ENCLOSED: $	e. DATE *January 31, 1984*

R. H. Gnaedinger, Ph.D.

TRAINING IN RADIATION

1. *Introduction to Radioactivity*	-	*Formal Course, Physics 409* *3 quarter hours - Michigan State University*
2. *Radiobiology*	-	*Formal Course, Physiology 430* *3 quarter hours - Michigan State University*
3. *Radiation Detection Instruments in Clinical Analysis*	-	*3 day short course, U.S. V.A. Hospital* *St. Louis, Missouri May 1973*

EXPERIENCE IN RADIATION

1. *Irradiation of Food Materials, Cobalt 60*	*- U.S. Department Interior* *4 years experience 1964-1968*
2. *Clinical Analyses (T_3, T_4)*	*4 months Missouri Baptist Hospital* *St. Louis, MO 1971*
3. *Radioimmunoassay*	*4 months, Washington University* *St. Louis, MO 1972*
4. *Gas Chromatography*	*10 years using Ni-63 Detectors*

1701C

DEPARTMENT OF SOCIAL SERVICES
MISSOURI DIVISION OF HEALTH
BROADWAY STATE OFFICE BUILDING
P.O. BOX 570
JEFFERSON CITY, MISSOURI 65102

STATE OF MISSOURI

OFFICIAL BUSINESS

Division of Fuel Cycle & Material Safety
Office of Nuclear Material Safety & Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555