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
- [X] c. RENEWAL OF: LICENSE NUMBER 46-10100-02

2. APPLICANT'S NAME *(Institution, firm, person, etc.)*
U.S. Environmental Protection Agency
Region 10 Laboratory
TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
206-442-0370

3. NAME AND TITLE OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION
Arnold R. Gahler, Laboratory Director
TELEPHONE NUMBER: AREA CODE – NUMBER EXTENSION
206-442-0370

4. APPLICANT'S MAILING ADDRESS *(Include Zip Code)*
*(Address to which NRC correspondence, notices, bulletins, etc., should be sent.)*
P.O. Box 549
Manchester, WA 98353

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED *(Include Zip Code)*
7411 Beach Drive East
Port Orchard, WA 98366

(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. | Robert Henry Rieck | Chemist |
| b. | Phillip Roger Davis | Physical Science Technician |
| c. | | |

7. RADIATION PROTECTION OFFICER
Arnold Robert Gahler

*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) | Hydrogen-3 | On metal foils in detectors | U.S. Radium Corp. Mod. Lab-508-1 or 508-3 foils. | 3 foils-250 millicuries ea. not to exceed 750 mc |
| (2) | Hydrogen-3 | On metal foils in detectors | " " " " " " | 2-foils-250 millicuries ea. not to exceed 500 mc |
| (3) | Nickel-63 | On metal foils in detectors | Tracor detector cell 114400-3201 | 10 millicuries |
| (4) | Nickel-63 | On metal foil in detectors | Tracor detector cell 111019-001 | 14.5 millicuries |

| | E DESCRIBE USE OF LICENSED MATERIAL |
|---|---|
| (1) | Radioactive material is in a detector for use in a gas chromatograph |
| (2) | " |
| (3) | " |
| (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. A. | NAME OF MANUFACTURER B. | MODEL NUMBER C. |
|---|---|---|---|
| (1) | Foil in Detector mounted on gas Chromatograph | Tracor | MT 222 |
| (2) | " | Tracor | MT 222 |
| (3) | " | Tracor | MT 222 |
| (4) | " | Tracor | MT 222 |

## 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.*

## 12. PERSONNEL MONITORING DEVICES

| TYPE (Check and/or complete as appropriate.) A | SUPPLIER (Service Company) B | EXCHANGE FREQUENCY C |
|---|---|---|
| ☐ (1) FILM BADGE N/A<br>☐ (2) THERMOLUMINESCENCE DOSIMETER (TLD)<br>☐ (3) OTHER (Specify): _____ | | ☐ MONTHLY<br>☐ QUARTERLY<br>☐ 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.

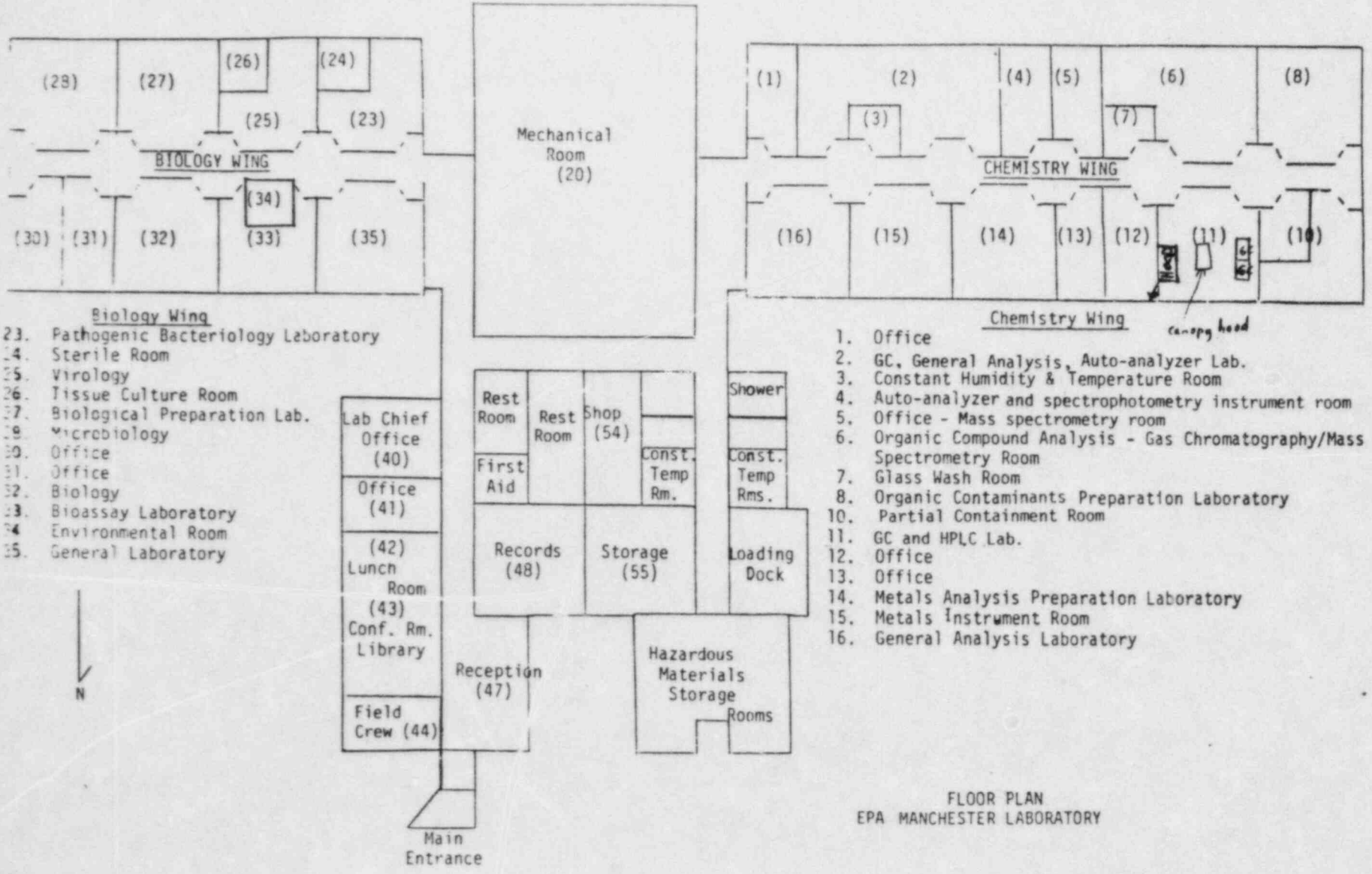
## 14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

N/A

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

If detector no longer used, it will be returned to manufacturer.




Biology Wing

23. Pathogenic Bacteriology Laboratory
24. Sterile Room
25. Virology
26. Tissue Culture Room
27. Biological Preparation Lab.
29. Microbiology
30. Office
31. Office
32. Biology
33. Bioassay Laboratory
34. Environmental Room
35. General Laboratory

Chemistry Wing

1. Office
2. GC, General Analysis, Auto-analyzer Lab.
3. Constant Humidity & Temperature Room
4. Auto-analyzer and spectrophotometry instrument room
5. Office - Mass spectrometry room
6. Organic Compound Analysis - Gas Chromatography/Mass Spectrometry Room
7. Glass Wash Room
8. Organic Contaminants Preparation Laboratory
10. Partial Containment Room
11. GC and HPLC Lab.
12. Office
13. Office
14. Metals Analysis Preparation Laboratory
15. Metals Instrument Room
16. General Analysis Laboratory

FLOOR PLAN
EPA MANCHESTER LABORATORY

13. Facilities & Equipment

No laboratory air is recycled to the building.

## 15. RADIATION PROTECTION PROGRAM

Wipe tests are performed every 6 months for the nickel 63 foil.

Since leak tests are unnecessary to the tritium foil, the condition of the source will be checked semi-annually by measuring the ionization current of the cell under repeatable conditions of carrier gas flow and cell voltage.

Temperature control devices are installed on each gas chromatograph to prevent excess temperature exposure for the tritium or nickel foil.

Bioassays of a urine specimen would be taken if anyone should be exposed to a concentration of tritium gas as a result of overheating of the detector.

All laboratory personnel are given an annual physical examination by EPA.

16. Formal Training in Radiation Safety

R.H. Rieck - None

P.R. Davis - None

A.R. Gahler

Courses: 1. Radioactive Tracer Methods (4 hours credit including laboratory)
Oregon State University, 1965
Dr. C.H. Wang, Director of the Radiation Center

2. Properties of Ionizing Radiation
University of Buffalo, 1959

17. Experience

R. H. Rieck - No experience with radiation. 15 years gas chromatography experience with detectors containing radioisotopes.

P. R. Davis - No experience with radiation. Limited experience with gas chromatography

A. R. Gahler - Performed laboratory studies on degradation of C-14 tagged NTA in environmental samples such as lake sediment and water. Low levels used for a year at EPA laboratory, Corvallis, Oregon.

Laboratory experience with gas chromatographs using detectors containing radioisotopes.

Supervised laboratory at Union Carbide Corp. handling isotopes in a radiation section. Isotopes handled:

Tritium - (low levels)
Sulfur - 35 (10 mc)
Zirconium - 95 (low levels)

These were used to study efficiency of analytical separations.

## 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)* N/A | b. CERTIFYING OFFICIAL *(Signature)* A R Gahler |
| | c. NAME *(Type or print)* Arnold R. Gahler |
| (1) LICENSE FEE CATEGORY: | d. TITLE Laboratory Director |
| (2) LICENSE FEE ENCLOSED: $ | e. DATE 5/10/83 |

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