NRC FORM 313
(1-84)
10 CFR 30, 32, 33, 34, 35 and 40

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED BY OMB
3150-0120
Expires: 5-31-87

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIAL SECTION B
631 PARK AVENUE
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
MATERIAL RADIATION PROTECTION SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
MATERIAL RADIATION PROTECTION SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*

- [ ] A. NEW LICENSE
- [ ] B. AMENDMENT TO LICENSE NUMBER _____
- [X] C. RENEWAL OF LICENSE NUMBER 10-0677-01

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include Zip Code)*

Centers for Disease Control
DHHS, PHS
1600 Clifton Road, N.E.
Atlanta, GA 30333

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED.

1600 Clifton Road, N.E.
Atlanta, GA 30333

P. O. Box 363
Webb Gin House Road
Lawrenceville, GA 30246

4770 Buford Highway
Chamblee, GA 30341

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Dr. Frank S. Lisella, Director, Office of Biosafety, CDC

TELEPHONE NUMBER: (404) 329-3883

SUBMIT ITEMS 5 THROUGH 11 ON 8½ x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSEE FEES *(See 10 CFR 170 and Section 170.31)*
FEE CATEGORY | AMOUNT ENCLOSED $

13. CERTIFICATION. *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN, IS TRUE AND CORRECT TO THE BEST OF THEIR 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.

SIGNATURE–CERTIFYING OFFICER	TYPED/PRINTED NAME	TITLE	DATE
Frank S Lisella	Frank S. Lisella, Ph.D.	Director Office of Biosafety	11/29/84

14. VOLUNTARY ECONOMIC DATA

a. ANNUAL RECEIPTS

- [ ] <$250K
- [ ] $250K–500K
- [ ] $500K–750K
- [ ] $750K–1M
- [ ] $1M–3.5M
- [ ] $3.5M–7M
- [ ] $7M–10M
- [ ] >$10M

b. NUMBER OF EMPLOYEES *(Total for entire facility excluding outside contractors)*

c. NUMBER OF BEDS

d. WOULD YOU BE WILLING TO FURNISH COST INFORMATION *(dollar and/or staff hours)* ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? *(NRC regulations permit it to protect confidential commercial or financial–proprietary–information furnished to the agency in confidence)*

- [ ] YES
- [ ] NO

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS	APPROVED BY
AMOUNT RECEIVED	CHECK NUMBER			DATE

FEE EXEMPT

PRIVACY ACT STATEMENT ON THE REVERSE

18444

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 313. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY:** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).

2. **PRINCIPAL PURPOSE(S):** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30, 32, 33, 34, 35 and 40 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.

3. **ROUTINE USES:** The information may be (a) provided to State health departments for their information and use; and (b) provided to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for an NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you.

4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION:** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed. A request that information be held from public inspection must be in accordance with the provisions of 10 CFR 2.790. Withholding from public inspection shall not affect the right, if any, of persons properly and directly concerned need to inspect the document.

5. **SYSTEM MANAGER(S) AND ADDRESS:** U.S. Nuclear Regulatory Commission
Director, Division of Fuel Cycle and Material Safety
Office of Nuclear Material Safety and Safeguards
Washington, D.C. 20555

APPLICATION FOR MATERIAL LICENSE

NRC Form 313

Item 5 - RADIOACTIVE MATERIAL

a. Any by-product material with atomic numbers 1 through 83.

b. Any

c. Not to exceed 100 millicuries per radionuclide and 5 curies total except:

Hydrogen	3	15	curies
Carbon	14	700	millicuries
Iodine	125	300	"
Nickel	63	500	"
Phosphorus	32	400	"
Sulfur	35	500	"

Item 6 - PURPOSES FOR WHICH LICENSED MATERIAL WILL BE USED

Research and development, as defined in paragraph 30.4(q) of 10 CFR Part 30.

Item 7 - INDIVIDUA(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.

7.1 The members of CDC's Radiation Safety Committee are collectively responsible for CDC's radiation safety program. Radioactive materials are to be used by or under the direct supervision of individuals (authorized users) designated by the Radiation Safety Committee, Dr. William Wagner, Chairman.

7.2 Mr. Paul D. Simpson, the Radiation Safety Officer, is a staff member of CDC's Office of Biosafety and is responsible for the day-to-day operation of the CDC radiation safety program.

Duties of the RSO include:

A. General surveillance and control of CDC's radiation safety program.

B. Assuring compliance with NRC regulations and CDC license requirements.

C. Supervision of CDC's laboratory monitoring program. The RSO ensures that all isotope laboratories at CDC are surveyed for radioactive contamination on a regular basis and that all safety equipment is operating properly.

D. Consults with and advises all levels of CDC management regarding the radiation safety program at CDC.

E. Receiving and monitoring of all radioactive material packages arriving at CDC. The RSO is also responsible for the proper shipping of radioactive material from CDC.

F. Directs CDC's personnel monitoring program. The RSO determines the worker's need for personnel monitoring, the type, and frequency of monitoring. The RSO keeps records of personnel exposure, bioassay and laboratory surveys. The RSO notifies radiation workers and their supervisors of exposures approaching maximum permissible amounts and recommends appropriate remedial action.

G. The RSO is responsible for maintaining CDC's radionuclide inventory, and limiting the quantity of radionuclides to the amounts authorized by the license.

H. The RSO has authority to terminate immediately any project that is a threat to health and/or property.

Item 7 INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE. (continued)

I. Ensures that leak tests are performed on all sealed sources as required by NRC regulations.

J. Supervises the radioactive waste disposal program at CDC. This includes managing the interim storage of radioactive waste, providing storage of radioactive materials not in current use, and making arrangements for the physical removal of radioactive waste from CDC by a licensed contractor.

K. Performs terminal surveys of laboratories which have discontinued use of radionuclides.

7.3 The Radiation Safety Committee is composed of eight principal members, including authorized users who have formal training and experience in radiation safety. The five ex-officio members of the committee represent CDC management, the employee health clinic, and the Office of Biosafety. Curricula vitae for each of the principal members are attached.

CDC reserves the right to change membership of the committee without the need to amend the license. Replacement members will be selected to retain expertise of the committee.

Item 7 INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE. (continued)

7.4 RADIATION SAFETY COMMITTEE

Dr. William M. Wagner, Chairman
Dr. Dan Bradley, Vice Chairman
Ms. Elaine Gunter, Executive Secretary
Mr. Paul D. Simpson, Radiation Safety Officer
Dr. Nancy Cox
Ms. Christie Eheman
Dr. Kathryn Kellar
Dr. Charles Stutzman

Ex-Officio Members

Mr. Everett Cowart
Dr. Walter Hoover
Dr. Frank S. Lisella
Dr. Gary R. Noble
Mr. David Weathers

DUTIES OF THE RADIATION SAFETY COMMITTEE

A. The CDC Radiation Safety Committee (RSC) will meet at least quarterly, but more frequently if necessary, to act on proposals for the use of radioactive materials. A quorum for the Radiation Safety Committee will consist of the chairman or the vice chairman and three principal members for a total of four members. One of the quarterly meetings of the Radiation Safety Committee will be used to conduct a thorough review of CDC's Radiation Safety Program. The guiding philosophy of the RSC shall be the ALARA principle, and means of achieving this state shall be reviewed by the RSC on an annual basis. Records of all Radiation Safety Committee meetings will be kept by the RSC Chairman and the Office of Biosafety.

B. The Radiation Safety Committee will have authority to make judgments on the adequacy of a laboratory to work with radioactive materials.

C. Authorized users will be named and approved by the Radiation Safety Committee. The authorized user will have authority to order and possess radioactive materials, and supervise others in the use of radioactive materials.

Item 7 INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE. (continued)

D. The Radiation Safety Committee approves all research projects involving the use of radioactive materials. To be approved, a research project must be carried out under the supervision of an authorized user, and the laboratory to be used must have adequate facilities. That is, each laboratory utilizing radioactive materials must meet the following basic criteria:

1. Laboratory must be adequately equipped with proper containment, shielding, waste containers, and isotope-handling apparatus.

2. Laboratory must be adequately designed to prevent spread of contamination. Air flow to laboratory must be negative to hallway and other laboratories. Laboratory work surfaces and floor must be constructed of impervious materials.

3. Laboratory must be posted with radiation warning signs and radiation procedures.

E. All personnel monitoring results will be reviewed by the RSC on a quarterly basis.

Item 8 - TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

Individuals who work in restricted areas where isotopes are used are divided into three occupational levels. Level 1 is defined as an authorized user, Level 2 is defined as a radiation worker, and Level 3 is defined as support personnel. The authorized user is the supervisor of a radioactive material laboratory who possesses formal college training in radiation safety or its equivalent and has approximately six years of experience handling radioactive materials. The radiation worker must complete CDC's Radiation Safety Course and is expected to receive additional instruction while working under the supervision of an authorized user. As required, support personnel, e.g., maintenance workers, cleaning crews, etc., receive appropriate training and instruction from the Office of Biosafety.

Item 9 - FACILITIES AND EQUIPMENT

1. All laboratories at CDC operate under negative pressure, which ensures the containment of gaseous and particulate materials within the room. Each laboratory is equipped with a sink for washing hands and minimum decontamination activities. Each laboratory suite contains either a chemical fume hood or biological safety cabinet. Hood exhausts are combined with room air exhausts into a common duct system to provide a non-recirculating air system. Laboratory procedures that are likely to create aerosols are conducted in a chemical fume hood or biological safety cabinet, i.e., Class I, II, or III. All chemical fume hoods have at least 100 LFPM intake velocity with the sash at an operating level of about 12 inches above the work surface.

2. CDC laboratories that use low-level tracer quantities of radionuclides are required to adhere to Biosafety Level 2 requirements as outlined in HHS publication no. (CDC)84-8395, "Biosafety in Microbiological and Biomedical Laboratories." (See Attachments)

3. At present we do not plan to use alpha-emitters.

4. CDC laboratories that use higher than trace quantities must adhere to Biosafety Level 2 criteria, and have the following additional listed equipment:

    a. Plexiglass shielding for strong beta emitters and lead shields for gamma emitters.

    b. Adequate radioactive material storage facilities, such as a locked storage cabinet, fume hood, refrigerator, or freezer.

    c. Adequate space and storage containers for radioactive waste.

    d. Fume hoods or Class III cabinets required for iodination procedures.

5. A diagram of a typical radioactive material laboratory is provided. (See Attachments)

Item 10 - RADIATION SAFETY PROGRAM

10.1 Radiation detection instruments

A. The CDC Office of Biosafety has available portable radiation survey meters for utilization by authorized users and workers. Additional survey meters are available in the various radioactive material laboratories.

B. Portable Instruments Used by Laboratorians

Note: The type of radiation detected by each instrument is indicated in parenthesis.

User/Laboratory	Portable Instrument
Dr. James Feeley CID, BD	Two model E-120 Eberline Geiger Mueller counters (Beta, Gamma)
Dr Don Francis CID, VRL	Two Ludlum Measurement Inc. Model 2 Geiger Mueller Counters (Beta, Gamma)
	Two Mini-Instruments, Ltd. Model 5-10EB, Geiger Mueller Counters (Beta, Gamma)
	Two Mini-Instruments, Ltd. Model 5-10E, Geiger Mueller Counters (Beta, Gamma)
Dr. Joseph McCormick CID, VRL Special Pathogens Lab	One model 2 Ludlum Geiger Mueller Counter (Beta, Gamma)

LABORATORY NUCLIDE COUNTING INSTRUMENTATION

Dr. James Feeley CID--BDD, 1/B-378	Searle Analytic 1185 (Gamma) Searle Isodyne 1185 (Gamma) Searle Isocap 300 (Beta)
Dr. Dan Palmer LPO--LTC, 1/B-206	Packard Auto-Gama (Gamma) Packard Tri-Carb (Beta)
Dr. Steve McDougal CID--HF, 1/1221	Beckman LS-350 (Beta) Beckman Gamma 310 (Gamma) LKB Wallace 1270 Rackgamma II (Gamma)

Item 10 - RADIATION SAFETY PROGRAM (continued)

Dr. Harry Daugherty CID--HF, 1/1364	Beckman Gamma 9000 (Gamma)
Dr. Bruce Evatt CID--HF, 1/1337	Beckman Gamma 9000 (Gamma)
Dr. Rosalie Baine CID--HF, 1/1317	Beckman LS-350 (Beta)
Dr. Kathi Kellar CID--HF, 1/2310	LKB Wallace 1275 Minigamma (Gamma)
Dr. Robert Eaves CEH--OD, 1/2254	Beckman LS-7000 (Beta)
Dr. Don Brenner 1/2213	Packard Tri-Carb 2450 (Beta)
Ms. Deenie Dudley LPO--TEA, 1/3358	Beckman Gamma 310 (Gamma)
Dr. Sandra Larsen CID--STD	Packard Tri-Carb 3002 (Beta)
Dr. Ciril Cabradilla CID--VRL, 7/244	Searle Mark III (Beta)
Dr. Alan Kendal	Nuclear Chicago Gamma Counter (Gamma)
Dr. Nancy Cox CID--VRL	Searle Analytic Beta 300 (Beta)
Dr. Mike Kiley CID--VRL, 7/SB-9	Beckman LS-8000 (Beta)
Dr. James Kilburn CID--BD, 7/7 Chamblee	Nuclear Chicago Isocap 300 (Beta)
Dr. Gary Myers CEH--CC, 17/Chamblee	LKB Wallace 1270 Rackgamma II (Gamma) LKB Wallace 1280 Ultragamma (Gamma) LKB Wallace 1216 Rackbetta (Beta) Beckman Gamma 5500 (Gamma) Beckman LS-350 (Gamma)
Mr. Vince Maggio CEH--CC, 32/12 Chamblee	Packard Prias Tri-Carb (Beta) Packard Prias Tri-Carb (Beta)

Item 10 - RADIATION SAFETY PROGRAM (continued)

10.2 Calibration of instruments

1. Portable radiation survey instruments are calibrated at six-month intervals by Ridge Instrument Company, 4432 Bibb Boulevard, Tucker, Georgia 30084, NRC License No. 380-1. Each instrument is calibrated with a two-point calibration on each scale of each instrument so that instrument readings are within 10 percent at each of two points separated by at least 50 percent on every scale.

2. A thyroid uptake spectrometer system manufactured by the Ludlum Measurements, Inc. Sweetwater, Texas, is used to monitor personnel for radioactive iodine uptake. This instrument has a 2.0-inch NaI(Tl) detector and is checked for counting efficiency by using a known source of radioactive iodine-129 to verify the spectrometer channel and counts associated with the I-129 gamma peak.

3. CDC reserves the right to contract for calibration services with other licensed firms.

10.3 Personnel monitoring devices

1. Radiation Detection Company, P. O. Box 1414, Sunnyvale, California 94088 has a contract to provide CDC with thermoluminescent dosimeters. Frequency of TLD exchange is determined by the number of radiation workers requesting versus those relinquishing dosimeters. CDC radiation workers who receive or are likely to receive a dose in any calendar quarter in excess of 25 percent of the applicable value specified in paragraph (a) of 10 CFR, Part 20, Section 20.101 will be monitored on a quarterly basis.

2. Thyroid monitoring is done on a quarterly schedule on all individuals who work with radioactive iodine (unsealed form) at a level of 1 mCi or higher (volatile or bound to a nonvolatile agent). Note: Quantities are cumulative amounts handled by a worker during a three-month period. Thyroids are monitored within 72 hours after incidents involving possible exposure to more than 0.1 mCi of radioactive iodine. Prior to beginning work with radioactive iodine, radiation workers will have their thyroid monitored to establish a baseline value.

10.4 (No Item No. 10.4)

10.5 Records of Radiation Safety Committee

1. Proceedings of Radiation Safety Committee meetings are recorded by the Executive Secretary and filed in the office of the Chairman of the Radiation Safety Committee. Copies of the proceedings are maintained in the Office of Biosafety.

2. The radiation safety program is reviewed annually by the Radiation Safety Committee. Programs will be evaluated emphasizing the philosophy of ALARA.

10.6 Radiation protection procedures

a. Only authorized users designated by CDC's Radiation Safety Committee are allowed to purchase radioactive materials. To initiate purchase, the authorized user must fill out CDC Form 0.19 (Requisition for the Purchase of Services, Supplies, and Equipment) and submit it to the Radiation Safety Officer for approval. Approved requisitions are forwarded to the Office of Procurement for action.

   Permission to use radioactive materials will be granted by the Radiation Safety Committee to occupational workers who have had CDC's radiation safety course, and who will work under the supervision of an authorized user. Training required of all radioactive materials users is discussed in Item 8. Rules and instructions for the safe handling of radioactive materials are discussed in the Radiation Safety Manual (See Attachments).

b. Manipulations involving radioactive iodine (volatile or dispersible form) will be carried out in a properly operating chemical fume hood having an intake velocity of at least 100 LFPM.

c. Each radioactive materials laboratory has instrumentation to monitor contamination; additionally, the Office of Biosafety has available radiation survey instruments for loan. Laboratory surveys will be performed to comply with 10 CFR, Part 20, Section 20.201.

d. Emergency procedures to be followed in the event of fire, explosion, and spills are discussed in the Radiation Safety Manual. (See Attachments).

e. The door to each radioactive materials laboratory will have appropriate radioactive material warning signs posted. The posting of laboratory signs and the labeling of items in laboratories are discussed in the Radiation Safety Manual.

Item 10 - RADIATION SAFETY PROGRAM (continued)

f. Personnel monitoring badges are supplied to employees by the Office of Biosafety. The radiation worker must submit CDC's Request for Radiation Monitoring Badge (CDC 0.871 6-80). After a successful evaluation of the request for a badge, the worker will be issued a temporary badge to use until the permanent badge arrives. Personnel monitoring and the care of thermoluminescent dosimeters are discussed in the Radiation Safety Manual.

g. Thyroid monitoring is performed on all individuals who will have a possible one-time exposure or total quarterly exposure to radioactive iodine of 1.0 mCi or greater quantities in a sealed container or an unsealed form. Each employee who works with radioactive iodine will have a baseline reading done prior to beginning work with radioactive iodine, and subsequently at quarterly intervals. Thyroid monitoring is done at the Employee Health Service Clinic by appointment, at any time for emergency.

h. Radioactive materials are transported between buildings and laboratories using the following safeguards: radioactive materials in liquid form are placed in breakproof plastic containers, and dry radioactive materials are placed in plastic bags with the top closed securely.

i. Laboratory surveys for radioactive contamination and action levels are discussed in the Radiation Safety Manual.

j. Each of our chromatograph detector cells containing radioactive nickel-63 is tested for leakage and/or contamination at six-month intervals by a licensed contractor, Nuclear Radiation Development; 2937 Alt Boulevard, North; Grand Island, New York. Their test is capable of detecting 0.005 microcuries of contamination. Records of results are kept in the Office of Biosafety. CDC reserves the right to contract for leak-testing services with other licensed firms.

   Other detector cells containing titanium tritide or scandium tritide foils are used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

k. All procedures related to the use of radioactive materials are outlined in the Radiation Safety Manual and will be periodically reviewed by the Radiation Safety Committee and revised as necessary to conform to the philosophy of ALARA.

Item 10 - RADIATION SAFETY PROGRAM (continued)

l. Records of receipts of radioactive materials, calibrations, waste disposal, and leak tests results are maintained in the Office of Biosafety.

m. Procedures for picking up, receiving, and opening packages of radioactive materials are discussed in the Radiation Safety Manual.

Item 11 - WASTE MANAGEMENT

11.1 Procedures for Segregation of Radioactive Waste

Laboratorians will segregate their radioactive waste into dry, aqueous, and solvent categories and will adhere to the following guidelines:

1. Each radioactive waste container will be correctly labeled indicating the isotope, activity, and date of assay.

2. Radioactive waste placed in plastic bags or containers will contain only one radioisotope.

3. Infectious radioactive waste must be disinfected via a hot or cold process before removal from laboratory area.

4. Discarded items used in conjunction with radioactive materials, e.g., needles, capillary pipettes, and other sharp objects will be placed in punctureproof containers.

5. All dry radioactive waste will be put in a plastic bag and secured at the top with tape or with a rubber band.

6. Aqueous radioactive waste must be in breakproof plastic container, one liter or larger in size.

7. Radioactive liquid scintillation vials with or without solvents must be upright and in the original shipping tray.

11.2 Description of Waste Storage Area

The radioactive waste storage area is located adjacent to Building 5 at the Clifton Road complex. The storage area measures 13 feet wide by 44 feet long, has a concrete floor and an aluminum roof. For security and safety reasons, the storage facility is completely enclosed by a locked chain link fence. Access to the area is strictly controlled by the Radiation Safety Officer and is managed by the following facts:

a. The Radiation Safety Officer is responsible for the safe transfer, packaging, and transport of low-level radioactive material residing in the waste storage area.

b. Material placed in the radioactive waste storage area is packed and transported to a disposal facility by a licensed

contractor in conformance with 10 CFR Part 20, Paragraph 20.301(a). The contractor for Fiscal Year 1985 is:

ADCO Services, Inc.
P. O. Box 35 (7225 Duvan Drive)
Tinley Park, Illinois 60477

c. At this time no radioactive wastes are being disposed of at CDC by means of incineration, release to the sanitary sewage system, or other means. We reserve the right to use any or all of these methods within regulatory restrictions and to contract for waste removal services.

Attachments:
(1) HHS Publication No. (CDC) 84-8395, "Biosafety in Microbiological and Biomedical Laboratories."
(2) Draft CDC Radiation Safety Manual, September 1984.
(3) Diagram of typical laboratory.
(4) Curricula vitae of members of the Radiation Safety Committee.