U.S. NUCLEAR REGULATORY COMMISSION

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REGULATORY GUIDE

OFFICE OF STANDARDS DEVELOPMENT

REGULATORY GUIDE 10.5
GUIDE FOR THE PREPARATION OF APPLICATIONS FOR TYPE A LICENSES OF BROAD SCOPE FOR BYPRODUCT MATERIAL

1. INTRODUCTION

1.1 Purpose of Guide

This guide describes the type and extent of information needed by the NRC staff to evaluate an application for a Type A specific license of broad scope for byproduct material (reactor-produced radionuclides). This type of license is provided for under Title 10, Code of Federal Regulations, Part 33, "Specific Licenses of Broad Scope for Byproduct Material."

The Type A specific license of broad scope is intended to accommodate those institutions involved in an extensive radioactive material program where the demand is great for a variety of radionuclides for many uses. This type of license is the most comprehensive issued and may be written to cover a wide range of radionuclides (e.g., all radionuclides with atomic numbers 1 through 83) for use under the control of a radiation safety committee. The license may authorize any use of byproduct radioactive material by anyone in accordance with review and approval procedures established by the radiation safety committee. Therefore, individuals are not named on the license as users of radioactive material nor are radionuclides limited to narrow, specific uses. This type of license is intended for use by licensees that cannot operate under a more limited specific license without seriously incommoding their programs.

1.2 Applicable Regulations

In addition to 10 CFR Part 33, other regulations pertaining to this type of license are found in 10 CFR Part 19, "Notices, Instructions, and Reports to Workers; Inspections;" 10 CFR Part 20, "Standards for Protection Against Radiation;" 10 CFR Part 30, "Rules of General Applicability to Licensing of Byproduct Material;" and 10 CFR Part 170, "Fees for Facilities and Materials Licenses Under the Atomic Energy Act of 1954, as Amended."

1.3 Items Requiring Separate Applications

a. Gamma Irradiation Facilities

A separate application should be submitted for sealed sources of quantities greater than 100 curies for gamma irradiation facilities. A specific licensing guide for gamma irradiator applications is available upon request.

b. Products Distributed to the Public

A broad specific license does not authorize the distribution to the public of products containing radionuclides. Upon request, the Radioisotopes Licensing Branch, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, will outline the type of information that the applicant should submit in support of such an application.

c. Source and Special Nuclear Materials

Separate applications should be submitted for these materials in accordance with Part 40, "Licensing of Source Material," and Part 70, "Special Nuclear Material," of 10 CFR. Source material is defined in paragraph 40.4(h) of 10 CFR Part 40 as (1) uranium or thorium, or any combination thereof, in any physical or chemical form or (2) ores that contain by weight 1/20 of one percent (0.05%) or more of (a) uranium, (b) thorium, or (c) any combination thereof. Source material does not include special nuclear material.

Special nuclear material is defined in paragraph 70.4(m) of 10 CFR Part 70 as (1) plutonium, uranium 233, uranium enriched in the isotope 233 or in the isotope 235, and any other material that the Commission pursuant to the provisions of Section 51 of the Atomic Energy Act of 1954, as amended, determines to be special nuclear material but does not include source material or (2) any material artificially enriched by any one of the foregoing but does not include source material.

USNRC REGULATORY GUIDES

Regulatory Guides are issued to describe and make available to the public methods acceptable to the NRC staff of implementing specific parts of the Commission's regulations, to delineate techniques used by the staff in evaluating specific problems or postulated accidents, or to provide guidance to applicants. Regulatory Guides are not substitutes for regulations, and compliance with them is not required. Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the findings requisite to the issuance or continuance of a permit or license by the Commission.

Comments and suggestions for improvements in these guides are encouraged at all times, and guides will be revised, as appropriate, to accommodate comments and to reflect new information or experience. However, comments on this guide, if received within about two months after its issuance, will be particularly useful in evaluating the need for an early revision.

Comments should be sent to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Section.

The guides are issued in the following ten broad divisions:

1. Power Reactors
2. Research and Test Reactors
3. Fuels and Materials Facilities
4. Environmental and Siting
5. Materials and Plant Protection
6. Products
7. Transportation
8. Occupational Health
9. Antitrust Review
10. General

Copies of published guides may be obtained by written request indicating the divisions desired to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Office of Standards Development.

1.4 As Low As Is Reasonably Achievable (ALARA)

Paragraph 20.1(c) of 10 CFR states the "...persons engaged in activities under licenses issued by the Nuclear Regulatory Commission pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974 should, in addition to complying with the requirements set forth in this part, make every reasonable effort to maintain radiation exposures, and releases of radioactive materials in effluents to unrestricted areas, as low as is reasonably achievable." Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As Is Reasonably Achievable," provides the NRC staff position on this important subject. License applicants should give consideration to the ALARA philosophy, as described in Regulatory Guide 8.10, in the development of plans for work with licensed radioactive materials.

2. LICENSE FEES

An application fee is required for most types of licenses. The applicant should refer to § 170.31, "Schedule of Fees for Materials Licenses," of 10 CFR Part 170 to determine the amount of the fee that must accompany the application. Review of the application will not begin until the proper fee is received by the NRC.

3. FILING AN APPLICATION

A license application for Type A licenses of broad scope should be submitted on Form NRC-313,* "Application for Byproduct Material License" (see the appendix to this guide). All items on the application form should be completed in sufficient detail for the NRC staff to determine that the applicant's equipment, facilities, and radiation protection program are adequate to protect health and minimize danger to life and property.

Since the space provided on Form NRC-313 is limited, the applicant should append additional sheets to provide complete information. Each separate sheet or document submitted with the application should be identified by a heading indicating the appropriate item number (Form NRC-313) and its purpose, e.g., radiation safety instructions, etc.

The application should be completed in triplicate. The original and one copy should be mailed to: Radioisotopes Licensing Branch, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. One copy of the application, with all attachments, should be retained by the applicant, since the license will require as a condition that the licensee follow the statements and representations set forth in the application and any supplement to it.

*Form NRC-313 was formerly designated Form AEC-313. Existing copies of Form AEC-313 may still be used.

4. CONTENTS OF AN APPLICATION

Most items of Form NRC-313 are self-explanatory (see instructions with the form). The following comments apply to the indicated items of the form.

Item 4. State that radioactive materials are to be used by individuals designated by the radiation safety committee, and state the name of the chairman of the committee.

Item 6(a). The usual entry is: "Any byproduct material with atomic numbers 1 through 83." If alpha-particle emitters are to be excluded, it should be so stated. If radionuclides with atomic numbers above 83 are included, they should be specifically identified.**

Item 6(b). Possession limits should be stated. A possession limit is that quantity of radioactive material that a licensee may have in his possession at any one time. For example, a total of one curie with a limit of 10 millicuries for each radionuclide between atomic numbers 1 and 83, inclusive, may be adequate. If the applicant requires higher possession limits for certain radionuclides, such needs should be clearly stated. It may also be necessary to limit the quantity of more hazardous radionuclides such as strontium 90. The possession limits for radionuclides with atomic numbers above 83 should be stated separately from those requested for atomic numbers 1 through 83. The total possession limit (i.e., the total quantity of all radionuclides that the applicant desires to possess at any one time) should include those radionuclides with atomic numbers above 83. The requested possession limit should be commensurate with the applicant's needs and facilities for safe handling. Stored wastes should be included in establishing both individual and total possession limits.

Item 7. Describe the type and extent of use of radioactive materials at each address given in Item 1(b). Such descriptions may be given in general terms but should characterize each use*** to the extent necessary for a determination by the NRC staff of the suitability of

**Source or special nuclear material should not be included. Separate applications should be submitted for these materials in accordance with 10 CFR Parts 40 and 70.

***A broad specific license does not authorize the use of radionuclides in the field where release of radioactive material to the environment is involved. Approval of requests for such uses is dependent upon supporting information specific to such uses. Upon request, the Radioisotopes Licensing Branch, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, will describe the type of information necessary for an applicant proposing such uses.

the equipment, facilities, and personnel training and experience.

Items 8 and 9. In addition to the information requested in Item 14 and specified below, the criteria and procedures for training and determining an acceptable level of knowledge of all persons who will work in or frequent a restricted area (i.e., users of radionuclides, technicians, health and safety personnel, janitorial workers, etc.) should be described (refer to § 19.12 of 10 CFR Part 19). The maintenance of records of all training, testing, and competency determinations should be specified in the application.

Item 10. List the minimum number of radiation surveying, monitoring, and measuring instruments that the applicant will have available for the safe use of radioactive material in accordance with Commission regulations. The applicant should specify the type of instruments that will be made available to individual users.

Instruments should be listed by characteristics (i.e., detector type, radiation detected, detection range, window thickness, etc.) and intended use (i.e., measuring, surveying, monitoring, etc.).

Item 11. Describe the instrument calibration procedure. State the frequency, and describe the methods and procedures for calibration of survey and monitoring instruments, as well as any other instruments and systems used in the radiation protection program, such as measuring instruments used to assay sealed-source leak-test samples, contamination samples (e.g., air samples, surface "wipe" samples), and bioassay samples (see Item 12).

An adequate calibration of survey instruments usually cannot be performed with built-in check sources. Electronic calibrations that do not involve a source of radiation are also not adequate to determine the proper functioning and response of all components of an instrument.

Daily or other frequent checks of survey instruments should be supplemented every 6 months with a two-point calibration on each scale of each instrument with the two points separated by at least 50% of the scale. Survey instruments should also be calibrated after repair.

A survey instrument may be considered properly calibrated at one point when the exposure rate measured by the instrument differs from the true exposure rate by less than 10% of full scale.

If the applicant is contracting out the calibration of instruments, the name, address, and license number of the calibrating firm should be given along with the frequency of calibration for each type of instrument.

Item 12. Describe fully the personnel monitoring program, including the types of monitoring devices to be used, the criteria to be used in determining the need for each type of device, the name of the organization furnishing film badge or thermoluminescent dosimeter (TLD) service, and the frequency for changing badges, rings, etc. If pocket chambers or pocket dosimeters are used, state the useful range, frequency of reading, and the procedures for maintaining and calibrating the devices.

The applicant should show that the need for bioassays has been thoroughly considered and should establish the adequacy of the proposed bioassay program in relation to the proposed program of use of radioactive material. Bioassays are normally required when individuals work with millicurie quantities of hydrogen 3, iodine 125, or iodine 131 depending on the type of work, equipment, and procedures followed. Other materials may also be used in physical or chemical forms and under conditions that present an opportunity for uptake by the body through ingestion, inhalation, or absorption. A bioassay program to determine and control the uptake of radioactive material should be considered and discussed in relation to each such material, procedure, etc.

The criteria to be used in determining the need for bioassays, the type and frequency of bioassays that will be performed, and the bioassay procedures should be specified and described in detail. If a commercial bioassay service is to be used, the name and address of the firm should be provided.

Bioassays may not be substituted for other elements of a safety program such as air monitoring and dispersion control (hoods, glove boxes, etc.) and for well-thought-out and well-executed handling procedures.

Item 13. A general description should be provided of facilities and equipment (e.g., buildings, hood ventilation and filtering systems, general air and stack monitoring systems, remote handling equipment) and access control methods used in association with the handling and storage of byproduct material.

Minimum facilities should be described, and an explanatory sketch should be included of each area (i.e., site, building, laboratory, room) where especially hazardous materials are used and stored or where especially hazardous operations are performed.

Radionuclides to be used in specific areas may be identified by their characteristics (i.e., beta emitter, gamma emitter, etc.) in lieu of specific atomic and mass numbers.

NOTE: Information submitted in support of a license application will become part of any license that is issued. This means that the licensee may be required to obtain a

license amendment prior to making changes to his facilities or equipment.

Item 14. All components of the application that contribute to the radiation protection program should be discussed in a narrative that establishes their relationships, interfaces, and contributions to the overall radiation safety program. The relationships of the radiation safety committee, the radiological safety officer, and management should be included. An organizational chart or charts may be helpful in this regard.

The application should demonstrate that the applicant can comply with license requirements and NRC rules and regulations and should clearly show an active and continuing involvement in program control by management.

a. Radiation Safety Committee

Paragraph 33.13(c)(1) of 10 CFR Part 33 requires that a radiation safety committee be established. This committee should be composed of such persons as a radiological safety officer, a representative of management, and other persons trained and experienced in the safe use of radioactive materials. One of the main functions of the radiation safety committee is to administer the institution's radioactive material program. The committee should have the authority and responsibility for approval and disapproval of all proposals for radionuclide use prior to purchase of the materials.

The following information concerning the committee should be submitted:

(1) A list of members of the committee.

(2) A description of each member's training and experience with radiation and radioactive material.

(3) A specific and detailed description of the control functions of the committee and the administrative procedures by which these functions are carried out, including the following:

(a) Responsibilities, duties, and authority of the committee.

(b) Frequency at which the full committee (or quorum) meets to discuss and act on proposals for the use of radionuclides. If less than the full committee is empowered to act for the committee, the number of members constituting a quorum, as well as their names or fields of expertise, should be specified.

(c) Procedures and criteria established for making safety evaluations of proposed uses of radioactive material. The procedures and criteria should include consideration of the adequacy of facilities and equipment; operating, handling, and emergency procedures; and the experience and training of the proposed users of the material.

(d) Procedures used for controlling and maintaining inventories, procurement of radioactive material, individual possession limits, total possession limit, transfer of radioactive material within the institution, and transfer of radioactive material to persons outside the institution.

(e) Methods employed for maintaining records of the committee's proceedings and safety evaluations of proposed uses of radioactive material.

(f) Periodic review of the safety program, including review of records required to be maintained.

b. Radiological Safety Officer*

Paragraph 33.13(c)(2) of 10 CFR Part 33 requires that a radiological safety officer be appointed. The radiological safety officer should be responsible for overall radiation protection within the institution. A description of his training and experience in radiation protection and with radiation and radioactive material should be provided. A statement should be included delineating his duties, responsibilities, and authority for carrying out the radiation safety program. The extent of his responsibility and authority will depend on the scope of the proposed program; however, the following should be considered:

(1) General surveillance over all activities involving radioactive material, including routine monitoring and special surveys of all areas in which radioactive material is used.

(2) Determining compliance with rules and regulations, license conditions, and the conditions of project approval specified by the radiation safety committee.

(3) Monitoring and maintaining absolute and other special filter systems associated with the use, storage, or disposal of radioactive material.

(4) Furnishing consulting services on all aspects of radiation protection to personnel at all levels of responsibility.

(5) Receiving, delivering, and opening all shipments of radioactive material arriving at the institution and receiving, packaging, and shipping all radioactive material leaving the institution.

*The terms "radiological safety officer" and "radiation protection officer" are synonymous.

(6) Distributing and processing personnel monitoring equipment; determining the need for and evaluation of bioassays; keeping personnel exposure and bioassay records; and notifying individuals and their supervisors of exposures approaching maximum permissible amounts and recommending appropriate remedial action.

(7) Conducting training programs and otherwise instructing personnel in the proper procedures for the use of radioactive material prior to use, at periodic intervals (refresher training), and as required by changes in procedures, equipment, regulations, etc.

(8) Supervising and coordinating the radioactive waste disposal program, including keeping waste storage and disposal records and monitoring effluents.

(9) Storing all radioactive materials not in current use, including wastes.

(10) Performing leak tests on all sealed sources.

(11) Maintaining an inventory of all radioisotopes at the institution and limiting the quantity of radionuclides at the institution to the amounts authorized by the license.

(12) The authority to terminate immediately a project that is found to be a threat to health or property.

(13) Maintaining other records not specifically designated above, e.g., receipt, transfer, and survey records as required by §30.51 of 10 CFR Part 30.

c. Radiation Protection Procedures

A formal set of rules, instructions, and procedures for procurement, disposal, and safe handling of radionuclides within the institution should be established by the radiation safety committee. A copy of these rules and procedures in the form in which they will be given to all personnel under the jurisdiction of the committee should be submitted.* Where instructions are given with respect to an action necessary for compliance with NRC regulations (e.g., waste disposal), such instructions should be specific and not consist of a simple reference to the regulations.

The written radiation protection procedures should be clear and concise and should cover the following:

(1) Process for obtaining permission to use radioactive materials at the institution.

(2) Care, selection, and use of protective apparel and other equipment and facilities.**

(3) Limitations and conditions (special equipment, facilities, and procedures) relative to handling liquid, gaseous, finely divided or uncontained radioactive materials*** and the equipment to use in working with them. For example, the types of materials and operations that should be confined to ventilated equipment with filtered exhaust systems (e.g., radiochemical fume hoods or glove boxes) and the types and amounts of shielding and remote handling equipment to be used with hard beta- and/or gamma-emitting materials should be defined.

(4) Special equipment, procedures, and precautions to be used in working with neutron and alpha-particle emitters and radionuclides that decay by spontaneous fission.

(5) Surveying and monitoring procedures to be followed during day-to-day operations.

(6) Emergency procedures and instructions concerning spills, fires, release or loss of material, and accidental contamination of personnel, including decontamination procedures and those persons to be notified in an emergency.

(7) Posting and control of access to restricted areas, radiation areas, high radiation areas, etc. (see §20.203 of 10 CFR Part 20).

(8) Requirements for material storage and safeguarding; labeling containers; processing and storing contaminated articles, including glassware; and identifying areas where radioactive material is used and stored (see §20.203 of 10 CFR Part 20).

*Although a specific set of rules and procedures is desired as a basis for evaluating the license application, the applicant may specify that certain portions of the documents may be revised without prior notification of the NRC staff. Those sections containing specific dates, references to particular pieces of equipment, etc., may be considered in this category.

**A complete description of respiratory protection devices and procedures for fitting, sanitizing, and repairing should be included. Credit for respiratory protection cannot be taken unless approved by the Commission pursuant to §20.103 of 10 CFR Part 20.

***Those applications or operations that present unusual hazards because of the nature of the material, the quantity involved, and the type of operation and that may require specialized facilities should be covered in separate instructions rather than incorporating these instructions in the main body of the radiation protection procedures.

(9) Care and use of personnel monitoring devices, where to obtain them, and where and when to record exposure results.

(10) Requirements for bioassays, if any, and the procedures for providing bioassay samples.

(11) Transporting radioactive material between buildings and rooms.

(12) Acceptable and unacceptable levels of contamination (fixed and removable) for equipment, facilities, clothing, skin, etc., in both restricted and unrestricted areas and protective action (i.e., decontamination, disposal, etc.) to be taken with respect to unacceptable levels.

(13) Requirements and procedures for leak-testing sealed sources.

(14) Requirements and procedures for waste disposal, including limitations on disposal of liquid, gaseous, and solid wastes. If radionuclides will be administered to animals, instructions for cleaning animal quarters and handling animal excreta and carcasses should be included.

(15) Requirements and procedures for the development and maintenance of records with respect to the receipt, use, and disposal of radioactive material.

(16) Requirements and procedures for picking up, receiving, and opening packages (see §20.205 of 10 CFR Part 20).

Item 15. A specific method for disposing of byproduct material waste should be described. A licensee may dispose of waste in the following ways:

a. Transfer to a person properly licensed to receive such waste.

b. Release into a sanitary sewer in conformance with §20.303 of 10 CFR Part 20.

c. Burial in soil in conformance with §20.304 of 10 CFR Part 20.

d. Release into the air or water in conformance with §20.106 of 10 CFR Part 20.

e. Treatment or disposal by incineration in conformance with §20.305 of 10 CFR Part 20.

f. Other methods specifically approved by the NRC pursuant to §20.302 of 10 CFR Part 20.

5. AMENDMENTS TO A LICENSE

Licensees are required to conduct their programs in accordance with statements, representations, and procedures contained in the license application and supportive documents. The license must therefore be amended if the licensee plans to make any changes in facilities, equipment (including monitoring and survey instruments), procedures, personnel, or byproduct material to be used.

Applications for license amendments may be filed either on the application form or in letter form. The application should identify the license by number and should clearly describe the exact nature of the changes, additions, or deletions. References to previously submitted information and documents should be clear and specific and should identify the pertinent information by date, page, and paragraph.

6. RENEWAL OF A LICENSE

An application for renewal of a license should be filed at least 30 days prior to the expiration date. This will ensure that the license does not expire until final action on the application has been taken by the NRC staff as provided for in paragraph 30.37(b) of 10 CFR Part 30.

Renewal applications should be filed on Form NRC-313, appropriately supplemented, and should contain complete and up-to-date information about the applicant's current program.

In order to facilitate the review process, the application for renewal should be submitted without reference to previously submitted documents and information. If such references cannot be avoided, they should be clear and specific and should identify the pertinent information by date, page, and paragraph.

APPENDIX

Form AEC-313 (2-73) 10 CFR 30	UNITED STATES ATOMIC ENERGY COMMISSION **APPLICATION FOR BYPRODUCT MATERIAL LICENSE**	Form approved Budget Bureau No. 38-R0037

INSTRUCTIONS — Complete items 1 through 16 if this is an initial application or an application for renewal of a license. Information contained in previous applications filed with the Commission with respect to items 8 through 15 may be incorporated by reference provided references are clear and specific. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail two copies to U.S. Atomic Energy Commission, Washington, D.C., 20545 Attention: Materials Branch, Directorate of Licensing. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10 Code of Federal Regulations, Part 20, and the license fee provisions of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in item 16 and the appropriate fee enclosed. (See Note in Instruction Sheet)

1 (a) NAME AND STREET ADDRESS OF APPLICANT (Institution, firm, hospital, person, etc. Include ZIP Code and telephone number.)	(b) STREET ADDRESS(ES), AT WHICH BYPRODUCT MATERIAL WILL BE USED (If different from 1(a). Include ZIP Code.)
2 DEPARTMENT TO USE BYPRODUCT MATERIAL	3 PREVIOUS LICENSE NUMBER(S): (If this is an application for renewal of a license, please indicate and give number.)
4 INDIVIDUAL USER(S) (Name and title of individual(s) who will use or directly supervise use of byproduct material. Give training and experience in items 8 and 9.)	5 RADIATION PROTECTION OFFICER (Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in items 8 and 9.)

6 (a) BYPRODUCT MATERIAL (Element and mass number of each.)	(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND OR PHYSICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME. (If sealed source(s), also state name of manufacturer, model number, number of sources and maximum activity per source.)

7 DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If byproduct material is for human use, Supplement A (Form AEC 313a) must be completed in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in which the source will be stored and/or used.)

(Continued on reverse side)

APPENDIX–(Continued)

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TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 4 (Use supplemental sheets if necessary)

8 TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)		FORMAL COURSE (Circle answer)	
a Principles and practices of radiation protection			Yes	No	Yes	No
b Radioactivity measurement standardization and monitoring techniques and instruments			Yes	No	Yes	No
c Mathematics and calculations basic to the use and measurement of radioactivity			Yes	No	Yes	No
d Biological effects of radiation			Yes	No	Yes	No

9 EXPERIENCE WITH RADIATION (Act or use of radioisotopes or equivalent experience)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE

10 RADIATION DETECTION INSTRUMENTS (Use supplemental sheets if necessary)

TYPE OF INSTRUMENTS (Include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm²)	USE (Monitoring, surveying, measuring)

11 METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE

12 FILM BADGES, DOSIMETERS, AND BIO ASSAY PROCEDURES USED (For film badges, specify method of calibrating and processing or name of supplier)

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS IN DUPLICATE

13 FACILITIES AND EQUIPMENT Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached (Circle answer) Yes No

14 RADIATION PROTECTION PROGRAM Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak tests, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source.

15 WASTE DISPOSAL If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved.

CERTIFICATE (This item must be completed by applicant)

16 THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE APPLICANT NAMED IN ITEM 1, 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

License Fee Category _____ Applicant named in item 1

Fee Enclosed $ _____ By: _____

Date _____ Title of certifying official

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.

☆ U.S. GPO: 1973—543-126/818