

**NEW YORK STATE
DEPARTMENT OF HEALTH
BUREAU OF ENVIRONMENTAL RADIATION PROTECTION
INDUSTRIAL UNIT**



Radiation Guide 1.5

***GUIDE FOR THE PREPARATION OF APPLICATIONS FOR
THE USE OF UNSEALED SOURCES OF RADIOACTIVE MATERIALS***

Attachment(s): **LLRW Guide**
01/07

INTRODUCTION

A. 1. Purpose of Guide

This guide describes the type of information that should be submitted in applications for specific licenses of limited scope for the possession and use of radioactive material in unsealed form. It does not apply to applications for specific licenses of broad scope, licenses for source or special nuclear materials, or licenses for kilocurie irradiation sources. It includes the general principles that will be considered in evaluating an applicant's proposed radiation safety program.

The New York State Department of Health will normally issue a single license to cover an entire radioisotope program. Separate licenses are not normally issued to different departments of a company, nor are they issued to individuals associated with the company.

The applicant should carefully study Code Rule 38 and this guide, and should submit all required information in sufficient detail to allow a complete review. The Department will request additional information, when necessary to provide reasonable assurance that the applicant's proposed use, equipment, facilities, procedures and staffing are adequate to protect health and safety and minimize danger to life and property, from radiation hazards. Such requests will delay final action on the application.

Two general principles that will be considered in evaluating proposed radiation safety measures are recognition by the company of:

- 1) The management's responsibility for the safety of employees and the public; and
- 2) Its responsibility for maintaining all radiation exposures and releases as low as is reasonably achievable (ALARA).

2. Purpose of Appendices to Guide

The regulations require that the licensee develop and implement procedures that will ensure compliance with the regulations. Appendices A through L to this guide describe model radiation safety procedures. Each applicant should carefully read the applicable regulations and model procedures and adopt them as written whenever possible. If you are unable to adopt a particular procedure as written, submit a copy of the procedure in the guide with your changes indicated in red ink. You must submit copies of these procedures with the application, and keep them with the license document when it is issued, since they will be made a part of the license at that time.

B. Applicable Regulations

All regulations pertaining to this type of license are found in 12 NYCRR 38 of the New York Code of Rules and Regulations.

C. As Low As is Reasonably Achievable (ALARA)

Part 38 requires that persons who operate or permit the operation of radiation installations shall make every effort to maintain radiation exposures and releases of radioactive material as far below the limits of Part 38 as is reasonably achievable. License applicants should give consideration to the ALARA philosophy in the development of plans for work with radioactive materials.

FILING AN APPLICATION

A license application for a specific license for the use of unsealed radioactive material should be submitted in Form DOSH 236, "Application for Radioactive Materials License" and appropriate attachments. The applicant should complete all items on the application form in sufficient detail for the review staff to determine that the applicant's equipment, facilities, personnel training and qualifications, and radiation safety program are adequate to protect health and minimize danger to life and property.

For items 6 through 17, submit the required information on supplementary pages. You should identify and key each separate sheet or document submitted with the application to the item number on the application to which it refers. All typed pages, sketches, and, if possible, drawings should be on 8 1/2 x 11 inch paper to facilitate handling and review. If larger drawings are necessary, fold them to 8 1/2 x 11 inches.

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. The original and one copy should be mailed to the following address:

New York State Department of Health
BERP Industrial Unit
Flanigan Square
547 River Street, Room 530
Troy New York 12180

Telephone: (518) 402-7550
Fax: (518) 402-7554

Applications received without fees will not be processed and the fee is non-refundable.

CONTENTS OF AN APPLICATION

The following paragraphs explain the information requested in Form DOSH 236.

- Item 1 Enter the name and corporate address of the company and the telephone number of a contact person for licensing issues.
- Item 2 List all addresses and locations where radioactive material will be used or stored if other than that in Item 1, e.g., a farm or research station. A post office box number should not be stated as the address for a place of use. These addresses and locations will become part of the license conditions, if the license application is approved, and the addresses or locations at which radioactive materials or radioactive wastes are located or stored may **not** be changed without obtaining a license amendment.
- Item 3 State the nature of the business in which your company is engaged.
- Item 4 Indicate whether the application is for a new license, an amendment to an existing license, or a renewal of an existing license.
- Item 5 If applicable, identify the department(s) of your company which will be using radioactive materials.
- Item 6 List all individuals who will use or directly supervise the use of radioactive material. Give the title or position of each person.
- Item 7 Radiation Safety Officer - Part 38 requires that a Radiation Safety Officer be appointed. The Radiation Safety Officer is responsible for the day-to-day operation of the radiation safety program. A description of his/her training and experience in radiation protection and the use of radioactive material should be provided, along with a curriculum vitae.

State the name and title of the person designated by, and responsible to, the company's management for the coordination of the radiation safety program. If the radiation safety officer is assisted by a consultant or part-time employee, state the consultant's name and describe his/her duties, responsibilities, and the amount of time to be devoted to the radiation safety program.

The Radiation Safety Officer should have, as minimum qualifications, a bachelors degree in science, formal training in radiological health (e.g., college level or its equivalent) and should have specific experience in radiation protection with the types, quantities and uses of the radioactive material requested in the application. Submit an outline of the candidate's training and experience in radiological health

and the use of radioactive materials. Include on-the-job and formal training, where it was obtained, dates and durations and the topics covered. Also include experience with the use of materials; radionuclides used, the quantities handled and the type of process. Experience in the specific functions the Radiation Safety Officer will perform (e.g., wipe-testing, leak-testing, thyroid bioassay, waste handling, meter calibration) should be individually listed.

A statement must be included delineating the Radiation Safety Officer's duties, responsibilities and authority for carrying out the radiation safety program. The extent of the Radiation Safety Officer's responsibility and authority will depend on the scope of the proposed program; however, the following should be considered for inclusion in your statement:

- (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 filter systems associated with the use, storage or disposal of radioactive material.
- (4) Furnishing consulting services on all aspects of radiation safety to personnel at all levels of responsibility.
- (5) Receiving, delivering and opening all shipments of radioactive material arriving at the company and receiving, packaging and shipping all radioactive material being shipped out.
- (6) Distributing and processing personnel monitoring equipment, determining the need for bioassays, keeping personnel exposure and bioassay records, and notifying individuals and their supervisors of exposures approaching ALARA levels 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, annually (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 and limiting the quantity of radionuclides to the amounts authorized by the license. The inventory should include the name of the person responsible for each quantity of radioisotope, where it will be used or stored, and the date the quantity was delivered to that person. Items are removed from the inventory by showing how and when the radioisotope was disposed of.
- (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).

- Item 8a List each radionuclide to be used, and specify the particular nuclides to be licensed for use by each individual named in item 5.
- Item 8b List the chemical and physical form and maximum quantity (in millicuries) of each radionuclide to be possessed at any one time. State separate possession limits for each chemical and physical form requested, e.g., iodine-131 as iodide and labeled proteins. List the manufacturer, model number, and quantity for all sealed sources. The possession limit for each radionuclide should include material held as radioactive wastes.
- Item 9 Describe the intended use for each radionuclide and form listed in items 8a and 8b. Any use of radioactive material in animals should also be indicated.
- Items 10 & 11 Training and Experience - Submit the curriculum vitae and a description of experience with radioactive materials for each individual listed in item 6. Include the radionuclides used, the quantities handled and the type of process conducted.
- Personnel Training Program - **Appendix B** to this Guide contains a model procedure. State that you will follow the model procedure or submit a copy of the Appendix with your changes indicated in red ink.
- Item 12 Instruments - Submit a list of all radiation detection instrumentation available. **Appendix C** to this guide contains a form that may be used to describe the instruments. Complete this form and return with application.
- Item 13 (a) Calibration of Instruments - If survey meter calibrations are performed at

your facility, you must submit your procedures. **Appendix D** to this Guide contains a model procedure. State that you will follow the model procedure or submit a copy of the Appendix with your changes indicated in red ink.

If your survey meters are sent out for calibration, submit a statement that calibrations will be performed by persons licensed to perform this service by the U.S. Nuclear Regulatory Commission or an Agreement State and that a copy of this license will be kept on file with the calibration certificates for our inspection.

(b) **Quantitative Measuring Instruments** - Instruments that will be used for quantitative measurements to determine compliance with Department regulations (e.g., leak-test measurements, effluent monitoring) should be calibrated at annual intervals. A description of the procedure for calibration of such instruments should be submitted and should include:

- (1) the manufacturer and model number of the source(s);
- (2) the nuclide and quantity of radioactive material in the source(s);
- (3) the accuracy of the source(s);
- (4) the step-by-step procedures for calibration, including associated radiation protection procedures; and
- (5) the name(s) and pertinent experience of person(s) who will perform the calibrations.

Item 14

(a) Bioassays may be required when individuals work with millicurie quantities of hydrogen-3, iodine-125, or iodine-131 (depending on the chemical and physical form, the procedures followed, and the equipment used). Guidance on bioassay programs for iodine-131 and iodine-125 including the levels and types of handling for which bioassays are indicated, are provided in U.S. Nuclear Regulatory Commission Guide 8.20, "Applications of Bioassays for I-125 and I-131" and Guide 8.32, "Criteria for Establishing a Tritium Bioassay Program." Copies of these guides are attached. If you propose to use bioassays less conservatively than is recommended in the guides discussed above, you should state your rationale. Submit your bioassay policy.

- Item 14 (b) Personnel Monitoring Program - **Appendix L** to this Guide contains a model procedure. State that you will follow the model procedure or submit a copy of the Appendix with your changes indicated in red ink.
- (c) Other Personnel Monitoring Records - Licensees that engage in research may have staff who are exposed to radiation/radioactive materials at other radiation installations not under the licensee's control. In such a case the staff must be provided with badges by the operator of the other installation, to monitor exposure under that license or registration. However, you must obtain records of such exposure(s), maintain them on file for our review and consider the exposure(s) in your ALARA program. Submit a statement that you will ensure that staff are properly monitored in accordance with paragraphs (a) and (b) of this Item, whether they are on your premises or at another radiation facility. You should also state that you will obtain and keep records of all such exposures on file, along with your other monitoring records.
- Item 15 Facilities and Equipment - Describe the facilities and equipment (e.g., remote handling equipment, storage containers, shielding, fume hoods) to be made available at each location where radioactive material will be used. Include a description of the area(s) assigned for the receipt, storage (including waste storage), preparation and measurement of radioactive materials. A diagram should be submitted showing the locations of shielding, the proximity of radiation sources to unrestricted areas, and other items related to radiation safety. When applicable to facilities where radioactive materials may become airborne, the diagram should also include schematic descriptions of the ventilation system, with pertinent airflow rates, pressures, filtration equipment, and monitoring instruments. Diagrams should be drawn to a specified scale, or dimensions should be indicated. The locations of the facilities and equipment should be specified with respect to the addresses and locations given in item 2.
- Item 16 Radiation Protection Program - Each licensee must develop, document and implement a radiation protection program commensurate with the size and complexity of their radioactive materials use.
- This must include a management commitment to maintain radiation exposures and releases as low as reasonably achievable (ALARA). Please submit such a commitment over the signature of your chief executive officer, or a management representative authorized to sign such documents for him or her. Company management must also ensure that an annual review of the radiation protection program content and implementation, and of the performance of the RSO, is conducted. If the use program is a large one, you may be required to establish a Radiation Safety Committee, or you may wish to do so voluntarily. In that case, the annual review should be performed by the Committee.

See **Appendix A** for a model procedure for setting up a Radiation Safety Committee (RSC).

Please submit either a statement that an RSC will be established following the model procedure in **Appendix A**, or that management will have an annual review conducted.

Appendix M to this guide, contains a copy of our own inspection form, which you may use or modify for use as a form for your reviews. Any form used should cover the same topics.

- (a) Procedures for Ordering and Receiving Radioactive Material - **Appendix E** to this Guide contains a model procedure. State that you will follow the model procedure or submit a copy of the Appendix with your changes indicated in red ink.
- (b) Procedures for Package Opening - **Appendix F** to this Guide contains a model procedure. State that you will follow the model procedure or submit a copy of the Appendix with your changes indicated in red ink.
- (c) General Rules for the Safe Use of Radioactive Material - Describe your rules for the safe use of radioactive material. **Appendix G** to this Guide contains a model procedure. State that you will follow the model procedure or submit a copy of the Appendix with your changes indicated in red ink.
- (d) Spill Procedures - **Appendix H** to this Guide contains a model procedure. State that you will follow the model procedure or submit a copy of the Appendix with your changes indicated in red ink.
- (e) Area Survey Procedures - **Appendix I** to this Guide contains a model procedure. State that you will follow the model procedure or submit a copy of the Appendix with your changes indicated in red ink.
- (f) Procedures and Precautions for Use of Radioactive Materials in Animals - Submit the procedures to be followed if radioisotopes will be used in animals, including: (a) a description of the animal housing facilities; (b) a copy of instructions provided to animal caretakers for the handling of animals, animal waste, and animal carcasses; (c) instructions for cleaning and decontaminating animal cages; and (d) procedures for ensuring that animal rooms will be locked or otherwise secured unless attended by authorized users of radioactive material. Instructions to animal caretakers should reflect the types of studies done and the relative hazard of the

radioisotopes used.

Other Procedures and Precautions for Use of Radioactive Materials Specified in item 8b - Clearly state any additional radiation safety procedures to be followed while individuals are using the materials listed in item 8b, e.g., air sampling¹, other special surveys or leak-testing sealed sources, including radiation safety procedures.

(g) Leak-Testing of Sealed Sources - Is required by Section 38.22, of CR 38. **Appendix K** to this Guide contains a model procedure. State that you will follow the model procedure or submit a copy of the Appendix with your changes indicated in red ink. If an outside service analyzes leak-test samples submit a statement that the service will be performed by persons licensed to do so by the U.S. Nuclear Regulatory Commission or an Agreement State and that a copy of this license will be kept on file with the leak-test reports for our review.

Item 17 Waste Disposal - See LLRW Guidance (Attached).

Item 18 Certificate - The application should be signed by the President, or any Chief Executive Officer. Identify the title of the office held by the individual who signs the application.

Enter the name and telephone number (including area code) of the individual who knows your proposed radioactive materials program and can answer questions about the application. This should be a staff member and not a consultant.

1. Releases to the environment are regulated by the New York State Department of Environmental protection in 6 NYCRR Part 380. For further information contact: New York State Department of Environmental Conservation, Division of Hazardous Substance Regulation, Bureau of Radiation, 625 Broadway, Albany, NY 12233-7255 or (518) 402-8579.

ADDITIONAL DOCUMENTS TO BE SUBMITTED

1. Applicants must send a copy of a letter that was sent to the Police Department in each permanent use location listed in item 2 of the application, which informs them that radioactive materials will be on the premises and instructs them on any precautions to be taken and notifications to be made in the event of a fire or emergency.
2. Applicants must send a copy of a letter that was sent to the Fire Department in each permanent use location listed in item 2 of the application, which informs them that radioactive materials will be on the premises and includes a completed Hazardous Materials Form (F100965-001), and instructs them in any precautions to be taken and notifications to be made in the event of a fire or emergency.
3. All applicants must provide proof that you have obtained the required Workers' Compensation and Disability Benefits coverage, or that you are not required to provide coverage under Section 57 of the Workers' Compensation Law and Section 220, subdivision 8 of the Disability Benefits Law. Such proof must be current at the time of license application.

AMENDMENTS TO LICENSES

Licensees are required to conduct their programs in accordance with statements, representations and procedures contained in the license application and supporting documents. The license **must** therefore be amended if the licensee plans to make any changes in the facilities, equipment (including type of monitoring and survey instruments), procedures, authorized users or radiation safety officer, or radioactive material to be used.

A request for amendment can be submitted in the form of a letter explaining the desired changes, and including any needed drawings, certificates, manufacturers specifications, etc. It is advisable to call this office first, so that the information to be submitted can be discussed in advance.

LIST OF APPENDICES

<u>Appendix</u>	<u>Subject</u>
A	Radiation Safety Committee
B	Model Personnel Training Program
C	Instrumentation
D	Model Procedure for Calibrating Survey Instruments
E	Model Procedure for Ordering and Receiving Radioactive Material
F	Model Procedure for Opening Packages Containing Radioactive Material
G	Model Rules for Safe Use of Radioactive Material
H	Model Spill Procedures
I	Model Procedures for Area Surveys
J	Waste Disposal (See attached Minimization and Management Guide)
K	Model Procedure for Leak-Testing Sealed Sources
L	Model Personnel External Exposure Monitoring Program
M	NYSDOH Inspection Form

APPENDIX A

RADIATION SAFETY COMMITTEE

MODEL PROCEDURE FOR ESTABLISHING A RADIATION SAFETY COMMITTEE

Responsibility

The Committee is responsible for:

1. Ensuring that all individuals who work with or in the vicinity of radioactive material have sufficient training and experience to enable them to perform their duties safely and in accordance with Department regulations and the conditions of this license.
2. Ensuring that all use of radioactive material is conducted in a safe manner and in accordance with Department regulations and the conditions of the license.

Duties

The Committee shall:

1. Be familiar with all pertinent New York State Department of Health regulations, the terms of the license, and information submitted in support of the request for the license and its amendments.
2. Review the training and experience of all individuals who use radioactive material and determine that their qualifications are sufficient to enable them to perform their duties safely and in accordance with New York State Health Department regulations and the conditions of the license.
3. Be responsible for monitoring the company's program to maintain individual and collective doses as low as reasonably achievable.
4. Review semi-annually, with the assistance of the Radiation Safety Officer, occupational radiation exposure records of all personnel working with radioactive materials.
5. Establish a table of investigational levels for occupational radiation exposure, which when exceeded, will initiate an investigation and consideration of action by the Radiation Safety Officer.
6. Establish a program to ensure that all individuals whose duties may require them to work in the vicinity of radioactive material (e.g., security and housekeeping personnel) are properly instructed as required by Section 38.27 New York State Code of Rules and Regulations (12 NYCRR 38).

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7. Review and approve all requests for use of radioactive material within the company.
8. Prescribe special conditions that will be required during a proposed use of radioactive material such as requirements for bioassays, and special monitoring procedures.
9. Review the radiation safety program content and implementation, and the performance of the Radiation Safety Officer at least annually, to determine that all activities are being conducted safely and in accordance with Department regulations and the conditions of the license. The review shall include an examination of all records, reports from the Radiation Safety Officer, results of the last Department inspection, written safety procedures, and the adequacy of the institution's management control system.
10. Recommend remedial action to correct any deficiencies identified in the review of the radiation safety program.
11. Maintain written records of all Committee meetings, actions, recommendations, and decisions.
12. Ensure that the radioactive materials license is amended, when necessary, prior to any changes in facilities, equipment, policies, procedures, radioactive material, possession limits, and personnel, as specified in the license.

Meetings

1. The Radiation Safety Committee shall meet as often as necessary to conduct its business, but not less than once in each calendar quarter.
2. A quorum shall consist of at least one-half of the Committee's membership, including the Radiation Safety Officer and a management representative.

APPENDIX B

MODEL PERSONNEL TRAINING PROGRAM

It may not be assumed that safety instruction has been adequately covered by prior training at other companies or institutions, even experienced professionals will need instruction in your procedures and the conditions of your license. Ancillary personnel (e.g., clerical, maintenance, security) whose duties may require them to work in the vicinity of radioactive material (whether escorted or not) need to be informed about radiation hazards and appropriate precautions. A training program that provides necessary instruction should be written and implemented.

Model Program

Personnel will be instructed:

1. Before assuming duties with, or in the vicinity of, radioactive materials.
2. During annual refresher training.
3. Whenever there is a significant change in duties, regulations, or the terms of the license.

Instruction for individuals in attendance will include the following subjects:

1. Applicable regulations and license conditions.
2. Areas where radioactive material is used or stored.
3. Potential hazards associated with radioactive material in each area where the employees will work.
4. Appropriate radiation safety procedures.
5. Licensee's in-house work rules.
6. Each individual's obligation to report unsafe conditions to the Radiation Safety Officer.
7. Appropriate response to emergencies or unsafe conditions.
8. Worker's right to be informed of occupational radiation exposure and bioassay results.
9. Locations where the licensee has posted or made available notices, copies of pertinent regulations, and copies of pertinent licenses and license conditions (including applications and applicable correspondence), as required by section 38.27 New York State Code of Rules and Regulations (12 NYCRR 38).

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Records that Document Training

Records of initial and refresher training will be maintained for three years and will include:

1. the name of the individual who conducted the training;
2. the names of the individuals who received the training;
3. the dates and duration of the training session; and
4. a list of the topics covered.

APPENDIX C

INSTRUMENTATION

1. Survey meters

a. Manufacturer's name _____

Manufacturer's model number _____

Number of instruments available _____

Minimum range _____ mR/hr to _____ mR/hr

b. Manufacturer's name _____

Manufacturer's model number _____

Number of instruments available _____

Minimum range _____ mR/hr to _____ mR/hr

Minimum range _____ mR/hr to _____ mR/hr

2. Other instruments used for quantitative measurement procedures (e.g., liquid scintillation counter, well counter, velometer)

<u>Type of Instrument</u>	Manufacturer's <u>Name</u>	<u>Model No.</u>
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APPENDIX D

MODEL PROCEDURE FOR CALIBRATING SURVEY INSTRUMENTS

Radiation survey meters must be calibrated with a radioactive source. Electronic calibrations alone are not acceptable. Survey meters must be calibrated at least annually and after servicing. (Battery changes are not considered "servicing.")

Model Procedure

1. The source must be approximately a point source.
2. Either the apparent source activity or the exposure rate at a given distance must be traceable by documented measurements to a standard certified within 5 percent accuracy by the National Bureau of Standards.
3. A source that has approximately the same photon energy as the environment in which the calibrated device will be employed should be used for the calibration.
4. The source should be of sufficient strength to give an exposure rate of about 30 mR/hr at 100 cm. Minimum activities of typical sources are 85 millicuries of cesium-137, 21 millicuries of cobalt-60, and 34 millicuries of radium-226.
5. The inverse square law and the radioactive decay law must be used to correct for change in exposure rate due to changes in distance or source decay.
6. A record must be made of each survey meter calibration.
7. A single point on a survey meter scale may be considered satisfactorily calibrated if the indicated exposure rate differs from the calculated exposure rate by less than 10 percent. Deviations of up to 20% may be acceptable if the correction factors for all scales are attached to the meter.
8. The following three kinds of scales are frequently used on survey meters:
 - a. Meters on which the user selects a linear scale must be calibrated at no less than two points on each scale. The points should be at approximately $1/3$ and $2/3$ of full scale.
 - b. Meters that have a multi-decade logarithmic scale must be calibrated at no less than one point on each decade and no less than two points on one of the decades. Those points should be at approximately $1/3$ and $2/3$ of scale.
 - c. Meters that have an automatically ranging digital display device for indicating rates must be calibrated at no less than one point on each decade and at no less than two points on one of the decades. Those points should be approximately $1/3$ and $2/3$ of the decade.

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9. Readings above 1,000 mR/hr need not be calibrated. However, such scales should be checked for operation and approximately correct response.
10. At the time of calibration, the apparent exposure rate from a built-in or owner-supplied check source should be determined and recorded.
11. The report of a survey meter calibration should indicate the procedure used and the data obtained. The description of the calibration will include:
 - a. The owner or user of the equipment.
 - b. A description of the instrument that includes manufacturer, model number, serial number, and type of detector.
 - c. A description of the calibration source, including exposure rate at a specified distance on a specified date.
 - d. For each calibration point, the calculated exposure rate, the indicated exposure rate, the deduced correction factor (the calculated exposure rate divided by the indicated exposure rate), and the scale selected on the instrument.
 - e. The reading indicated with the instrument in the "battery check" mode (if available on the instrument).
 - f. The angle between the radiation flux field and detector (for external cylindrical GM or ionization-type detectors, this will usually be "parallel" or "perpendicular" indicating photons traveling either parallel with or perpendicular to the central axis of the detector. For instruments with internal detectors, this should be the angle between the flux field and a specified surface of the instrument.
 - g. For detectors with removable shielding, an indication of whether the shielding was in place or removed during the calibration procedure.
 - h. The apparent exposure rate from the check source.
 - i. The name of the person who performed the calibration and the date on which the calibration was performed.
12. The following information should be attached to the instrument as a calibration sticker or tag:
 - a. The source that was used to calibrate the instrument.
 - b. The proper deflection in the battery check mode (unless this is clearly indicated on the instrument).

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- c. For each scale or decade, one of the following is appropriate:
 - 1) the average correction factor:
 - 2) a graph or graphs from which the correction factor for each scale or decade may be deduced; or
 - 3) an indication that the scale was checked for function but not calibrated, or an indication that the scale was inoperative.
- d. The angle between the radiation flux and the detector during the calibration.
- e. The apparent exposure rate from the check source.

NOTE: One-word reminders or symbols that are explained on the Survey Meter Calibration report may be used on the calibration sticker.

On the following page is a form you may want to use.

APPENDIX D - Page 4
Survey Meter Calibration Report

Owner: _____ Department _____


Manufacturer _____ Type: _____ Ion Chamber G/M NaI _____

Meter Model: _____ S/N: _____ Probe Model: _____ S/N: _____

Calib. Source: _____ mCi of _____, _____ mR/h @ _____ cm on _____, 19____.

Instrument checks: Batt. check: _____ mR/h or _____

Constancy check: integral check source indicates _____ mR/h.
 _____ mCi of _____ indicates _____ mR/h.

Calibration Geometry:   

Window: open closed fixed

Dist (cm)	mR/h today	Scale		Scale		Scale		Scale	
		rdg	CF	rdg	CF	rdg	CF	rdg	CF

Correction Factors: _____

Name: _____ Date: _____

APPENDIX E

MODEL PROCEDURE FOR ORDERING AND ACCEPTING DELIVERY OF RADIOACTIVE MATERIAL

Model Procedure

1. The Radiation Safety Officer will place all orders for radioactive materials and will ensure that the requested materials and quantities are authorized by the license and that possession limits are not exceeded.
2. A system for ordering and receiving radioactive materials will be established and maintained. The system will consist minimally of the following:
 - a. Written records will be used that identify the isotope, compound, activity levels, and supplier.
 - b. The written records will be referenced when opening or storing radioactive shipments.
 - c. Written records will be maintained for all ordering and receipt procedures.
3. During normal working hours, carriers will be instructed to deliver radioactive materials directly to _____.*
4. During off-duty hours security personnel or other designated individuals will accept delivery of radioactive packages in accordance with the procedures outlined in the attached sample memorandum.

*The appropriate information for your facility should be supplied in this space.

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Sample Memorandum*

MEMORANDUM TO: Security Personnel
FROM: John Smith, Administrator
SUBJECT: Receipt of Packages Containing Radioactive Material

Any packages containing radioactive material that arrive between 4:30 PM and 7:00 AM, or on Sundays, shall be signed for by the Security Guard on duty and taken immediately to the Radiation Safety Office. Unlock the door, place the package on top of the counter immediately to the right of the door, and re-lock the door.

If the package is wet or appears to be damaged, immediately contact the Radiation Safety Officer. Ask the carrier to remain at the institution until it can be determined that neither he, nor the delivery vehicle, are contaminated.

RADIATION SAFETY OFFICER _____

OFFICE TELEPHONE _____ HOME TELEPHONE _____

*Submit a copy of your own institution's memorandum.

APPENDIX F

MODEL PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL

Model Procedure

1. Packages will be surveyed for external and removable radioactive contamination in accordance with the provisions of Section 38.32, of CR 38.
2. For all packages, the following procedures for opening packages will be carried out:
 - a. Put on gloves to prevent hand contamination.
 - b. Visually inspect package for any sign of damage (i.e., wetness, crushed). If damage is noted, stop procedure and notify Radiation Safety Officer.
 - c. Measure exposure rate at 3 feet (or 1 m) from package surface and record. If it is higher than usual, stop and notify the Radiation Safety Officer.
 - d. Open the package with the following precautionary steps:
 - (1) Open the outer package (following manufacturer's directions, if supplied) and remove packing slip.
 - (2) Open inner package and verify that contents agree with those on packing slip. Compare requisition, packing slip and label on container.
 - (3) Check integrity of final source container (i.e., inspect for breakage of seals or vials, loss of liquid, or discoloration of packaging material).
 - e. If there is any reason to suspect contamination, wipe external surface of final source container and remove wipe to low background area. Assay the wipe and record amount of removable radioactivity (i.e., dpm/100 square centimeters, etc.). Check wipes with a thin-end window GM survey meter, and take precautions against the spread of contamination as necessary.
 - f. Monitor the packing material and packages for contamination before discarding.
 - (1) If contaminated, treat as radioactive waste.
 - (2) If not contaminated, obliterate radiation labels before discarding in regular trash.
3. Maintain records of the results of checking each package, using "Radioactive Shipment Receipt Record" (see next page), or a form containing the same information.

APPENDIX F - Page 2

Radioactive Shipment Receipt Record

1. P.O. No. _____ Survey Date _____ Time _____
Surveyor _____
2. Condition of the Package:
____ OK
____ Other (explain)
3. Radiation Units of Label: _____ units (mR/hr)
4. Measured Radiation Levels:
 - a. Package Surface _____ mR/hr
 - b. 3 feet or 1 meter from Surface _____ mR/hr
5. Do Packing Slip and Vial Contents Agree?
 - a. Radionuclide ____ Yes ____ NoDifference _____
 - b. Amount ____ Yes ____ NoDifference _____
 - c. Chemical Form ____ Yes ____ NoDifference _____
6. Wipe Results From:
 - a. Outer ____ (CPM - Bkg) ÷ (efficiency) = ____ DPM
 - b. Final Source Container ____ (CPM - Bkg) ÷ (efficiency) = ____ DPM
7. Survey Results of Packing Material and Cartons _____ mR/hr, CPM
8. Disposition of Package After Inspection _____
9. If Department/Carrier Notification Required, Give Time, Date, and Persons Notified

Signature Date

APPENDIX G
MODEL RULES FOR SAFE USE OF RADIOACTIVE MATERIAL

These rules must be posted as required by Section 38.27 (b), of CR 38, or their location noted on the DOH's "Notice to Employees."

Model Rules

1. Prior to performing operations with quantities of radioactive material which may produce significant external or internal exposure, attention shall be given by the user to precautionary measures including the use of remote handling devices, hoods, shielding, etc. The Radiation Safety Officer must be consulted before beginning any new use of radioactive material.
2. There shall be no eating, drinking, applying cosmetics or preparation of food in any location where unsealed sources of radioactive materials are used or stored.
3. Smoking is prohibited in locations where unsealed sources of radioactive materials are used or stored.
4. Do not store food, drink, or personal effects with radioactive material.
5. Pipetting of radioactive solutions by mouth is prohibited.
6. Segregate pipetting devices used with radioactive materials from those used with non-radioactive solutions.
7. Lab coats and disposable gloves shall be worn during operations involving the handling of unsealed sources of radioactive material. The lab coat and gloves should be removed before leaving the laboratory. Care must be taken such that other items (e.g., pens, pencils, notebooks, door knobs, telephones, etc.) are not handled with gloves used during work with radioactive materials.
8. Work which may result in contamination of work surfaces shall be done using pre-planning to minimize contamination and prevent spills. Trays made of impervious materials, (i.e., stainless steel, porcelain-coated, etc.) with a raised edge that will contain a spill, can help prevent the spread of contamination.
9. Work surfaces and personnel should be monitored after working with radioactive materials, and decontaminated if necessary.
10. Where there has been a spill of radioactive material (see posted Spill Procedures) which may have produced contamination of the person or clothing, both the person and the clothing shall be monitored. Personnel contamination shall be removed as soon as possible.

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Where contamination above action levels is noted during a routine survey, decontamination must be immediately initiated by the user.

11. After working with unsealed sources of radioactive material, hands should be monitored and washed before leaving the laboratory.
12. Objects and equipment that may have been contaminated with radioactive material shall be surveyed and demonstrated to be free of contamination prior to their removal from a laboratory, or transferred to other laboratories, repair shops, surplus, etc. If found to be contaminated, such items must be decontaminated as soon as practicable.
13. If personnel monitoring devices (whole-body or ring badge) have been issued to you for your work with radioactive material, they must be worn at all times when in areas where these materials are used or stored. These devices should be worn as prescribed by the Radiation Safety Officer. Personnel monitoring devices should be stored in a designated low background area when they are not being worn to monitor occupational exposures. They are not to be left on your lab coat or shared by another individual.
14. Dispose of radioactive waste only in the manner designated by the Radiation Safety Officer and maintain records as instructed.
15. Store radioactive materials in covered containers, plainly identified and labeled with name of compound, radionuclide, date, activity, and radiation level, if applicable.
16. Always transport radioactive material in appropriately shielded containers.

APPENDIX H

MODEL SPILL PROCEDURES

These procedures must be **posted** as required by Section 38.27 (b), New York State Code of Rules and Regulations (12 NYCRR 38).

Minor* Spills:

1. NOTIFY: Notify persons in the area that a spill has occurred.
2. PREVENT THE SPREAD: Cover the spill with absorbent paper.
3. CLEAN UP: Use disposable gloves and remote handling tongs. Carefully fold the absorbent paper and pad. Insert into a plastic bag and dispose of in the radioactive waste container. Also insert into the plastic bag all other contaminated materials such as contaminated gloves.
4. SURVEY: With a low-range thin-window GM survey meter, check the area around the spill, hands, and clothing for contamination.
5. REPORT: Report incident to the Radiation Safety Officer.

Major* Spills:

1. CLEAR THE AREA: Notify all persons not involved in the spill to vacate the room.
2. PREVENT THE SPREAD: Cover the spill with absorbent pads, but do not attempt to clean it up. Confine the movement of all potentially contaminated personnel to prevent the spread.
3. SHIELD THE SOURCE: The spill should be shielded only if it can be done without further contamination or without significantly increasing your radiation exposure.
4. CLOSE THE ROOM: Leave the room and lock the door(s) to prevent entry.
5. CALL FOR HELP: Notify the Radiation Safety Officer immediately.
6. PERSONNEL DECONTAMINATION: Contaminated clothing should be removed and stored for further evaluation by the Radiation Safety Officer. If the spill is on the skin, flush thoroughly and then wash with mild soap and lukewarm water.

*Define Minor and Major as they apply to your facility.

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7. The Radiation Safety Officer will supervise the clean-up of the spill and will complete a report.

RADIATION SAFETY OFFICER: _____**

OFFICE PHONE: _____

HOME PHONE: _____

ALTERNATE NAMES AND TELEPHONE NUMBERS DESIGNATED BY THE
RADIATION SAFETY OFFICER:

**The appropriate information for your facility should be supplied in these blanks when posting these procedures or submitting them with the application.

APPENDIX I

MODEL PROCEDURE FOR AREA SURVEYS

Model Procedure

1. Laboratory areas where only small quantities of radioactive material are used (less than 200 uCi at a time) will be surveyed monthly.
2. Waste storage areas and all other laboratory areas will be surveyed weekly.
3. The weekly and monthly surveys will consist of:
 - a. A measurement of radiation levels with a thin-window survey meter sensitive enough to detect 0.1 mR/hr and having an audio function.
 - b. A series of wipe tests to measure removable contamination levels. The method for performing wipe tests will be sensitive enough to detect 1000dpm per 100 square centimeters for the contaminant involved (200 dpm per 100 square centimeters for radioiodine). Wipes made in high background areas will be removed to a low background area for measurement.
4. A permanent record will be kept of all weekly and monthly survey results, including negative results. The record will include:
 - a. Location, date and identification of equipment used, including the serial number and pertinent counting efficiencies.
 - b. Name of person conducting the survey.
 - c. Drawing of area surveyed, identifying relevant features such as active storage areas, active waste areas, etc.
 - d. Measured exposure rates, keyed to a location on the drawing (point out rates that require corrective action).
 - e. Detected contamination levels, keyed to locations on drawing.

Areas will be cleaned if the removable contamination level exceeds 1000 dpm/100 square centimeters for wipe surveys (except that for radioiodine an action level of 200 dpm/100cm² will be used), and corrective action will be evaluated for non-removable contamination if radiation levels measured at 1cm from a surface exceeding 1 millirem per hour from fixed contamination.

APPENDIX I – Page 2

5. Daily meter surveys will be performed on days when radioactive materials are used, at the conclusion of the operation in which they were used or at the end of the day. A record indicating that such a survey was made shall be kept and shall include the initials of the person making the survey and whether any radiation level was measured that exceeded 1 millirem per hour and if so, whether any corrective action was taken or the reason why not.

APPENDIX K

MODEL PROCEDURE FOR LEAK-TESTING SEALED SOURCES

Model Procedure

1. Make a list of all sources to be tested. This should include at least the isotope, the activity on a specified date, and the physical form.
2. If you will be testing high-activity sources, set out a survey meter, preferably with a speaker, so you can monitor your exposure rate.
3. Prepare a separate wipe sample for each source. A cotton swab, filter paper, or tissue paper is suitable. Number each wipe so you will know which source it is to be used for. Samples should be taken in accordance with the manufacturer's leak test instructions. The following general guidance may be used when specific instructions are lacking:
 - a. For small sealed sources, it is easiest to wipe the entire accessible surface area. Pay particular attention to seams and joints. However, do not wipe the port of beta applicators or gauges.
 - b. For larger sealed sources and devices (survey meter calibrator, irradiators), take the wipe near the radiation port and on the activating mechanism.
 - c. If you are testing radium sources, they should also be checked for radon leakage. This can be done by submerging the source in a vial of fine-grained charcoal or vermiculite for a day. Then remove the source and analyze the adsorbent sample as described below. A survey should be done to be sure the sources are adequately shielded during the leak-test period.
4. The samples will be analyzed as follows:
 - a. Select a suitable detector that is sufficiently sensitive to detect 0.005 microcuries. For beta sources, a proportional flow counter or liquid scintillation counter may be appropriate. For gamma sources, a crystal with a ratemeter or scaler is usually necessary (a well counter).
 - b. Assay a check source that has the same isotope as the sealed source and whose activity is certified by the supplier. If one is not available, it will be necessary to use a certified check source with a different isotope that has a similar spectrum in order to estimate the detection efficiency of the analyzer used to assay the wipe samples.
 - c. Assay the wipe sample. It must be in the same geometry relative to the detector as was the certified check source.
 - d. Calculate the estimated activity in microcuries on the wipe sample.

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- e. Continue same analysis procedure for all wipe samples.
- f. If the wipe sample activity is 0.005 microcuries or greater, notify the RSO. The source must be withdrawn from use to be repaired or disposed of and the Department must be notified pursuant to 12 NYCRR 38.22.
- g. Record the wipe sample results on the list of sources, and sign and date the list.

APPENDIX L

MODEL PERSONNEL EXTERNAL EXPOSURE MONITORING PROGRAM

Personnel monitoring devices shall be provided for individuals in accordance with the following criteria:

- a) Personnel who handle millicurie quantities of photon or energetic beta emitting radionuclides on a regular basis* shall be supplied with a film or TLD finger monitor.
- b) Personnel who handle millicurie quantities of energetic photon emitting radioactive materials on a regular basis* shall be supplied with film or TLD whole body monitors.
- c) Personnel who are occupationally exposed to radiation on an occasional basis, need not be monitored if the requirements of 38.24 do not apply.

* This refers to personnel such as laboratory workers who handle millicurie quantities either routinely or as stock quantities.

APPENDIX M

NYSDOH INSPECTION FORM

**NEW YORK STATE DEPARTMENT OF HEALTH
Bureau of Environmental Radiation Protection
INSPECTION OF RADIONUCLIDE INSTALLATION**

SUMMARY

1. Name, Address _____
of Licensee _____

2. License No. _____
3. Last Amendment No. _____
4. Expiration Date _____
5. Date of Inspection _____ 6. Date of Last Inspection _____ 7. Compliance: Y N

8. Type License:
- | | |
|-------------------|--------------------|
| Broad Scope _____ | Radiography _____ |
| Loose RAM _____ | Nuc. Pharm. _____ |
| Fixed Gauge _____ | Waste Broker _____ |
| Port. Gauge _____ | Gas Chrom. _____ |
| Irradiator _____ | Other _____ |

9. Brief description of operations using RAM
- _____
- _____
- _____
- _____

10. Type of Inspection: Initial Complete _____ Follow-up Partial _____ Announced _____
Unannounced _____ Routine Complete _____ Close Out _____

11. Inspector(s): _____

12. Person(s) Contacted: (include name and title)

Reviewer _____ Date _____

SUMMARY

13. Radiation Safety Officer: _____

14. Telephone No. (____) _____

15. Incidents and Unusual Occurrences (accidents, losses, thefts, overexposures, misadministration, etc.) since last inspection:

16. Exit Interview with Management (name of person contacted and summary of discussion; indicate waste management covered, also current violations, correction of previous violations, program strengths and weaknesses).

17. Deviations from License Requirements:

18. Radiation Protection Program:

A. R.S.O. (duties, authority, evidence of oversight):

B. Annual audits of program and RSO's performance done?

C. Annual refresher training of radiation workers done (records, topics):

SUMMARY

(18. continued)

D. ALARA Program (policies, actions and results):

19. Inspectors Evaluation and Summary:

A. Evidence of Management Oversight (audit of RSO, etc.)

B. Staffing adequate (number, knowledge, performance)

C. Facilities Adequate (Protective Devices; Work, Storage & Waste Areas)

D. Quality of Procedures & Operations Adequate(Overall Compliance, Consulting Support, Contamination Control, Tests & Surveys Done)

E. Radiopharmacy: (any errors in doses, any therapy errors)

20. Previous Items of Non-Compliance:

(attach copy of cites from last inspection report)

21. Corrections & Present Non-Compliance and Safety Items:

A. Previous items corrected: Y____ N____ (Note on attached copy which items)

B. Current items:

WASTE MANAGEMENT REVIEW

A. Minimization Review

1. (a) Making Organized effort to reduce volume/activity of long-lived waste? Yes___ No___ NA___

(b) Comments: (long-lived sources received from supplier who agrees to accept them back, substitution of short-lived nuclides, ordering only amounts needed, etc.)

2. Examples of reductions:

3. Types and quantities of waste still being generated that requires eventual off-site disposal:

B. Management Review

	Yes	No	NA
1. Processing done	___	___	___
___ on-site ___ off-site			

Types:

WASTE MANAGEMENT REVIEW

B. Management Review (continued):

Comments: (DEC permits; facilities, equipment and maintenance, instruction to personnel and protective clothing/devices, air monitoring and surveys, etc.)

2. Storage facilities (describe):

	Yes	No	NA
- Space adequate at present	___	___	___
- Space adequate for projected future volume	___	___	___
3. Program meets criteria of DOH guidance on LLRW management	___	___	___

Improvements needed:

C. Disposal records adequate for the following waste streams:

- Sewage disposal (calculations done, compliance with limits documented):

WASTE MANAGEMENT REVIEW

C. (continued)

- Decay in storage (all conditions met, guide used):

- Exempted carcasses and other carcasses:

- Exempted fluors:

- Returns/transfers:

OPERATIONS

	Yes	No	NA
A) Incoming Shipments (how received, off-hours provisions, surveys):	—	—	—
B) Receipt Records Adequate:	—	—	—
C) Transfer Records Adequate (including waste):	—	—	—
D) Inventory Control Adequate:	—	—	—
Frequency of inventories _____			
E) Surveys of use and storage areas (including waste):			
(1) (a) Surveys Made - meter (Frequency _____)	—	—	—
(b) Surveys Made - wipes (Frequency _____)	—	—	—
(2) Surveys Made at Required Frequency:	—	—	—
(3) Survey Records Adequate (actual values recorded and compared to action levels):	—	—	—
(4) Comments:			

Inventory: List RAM inventory or attach licensee's inventory

Source inventory:

<u>Isotope</u>	<u>Activity</u>	<u>Manufacturer</u>	<u>SN</u>	<u>Location</u>

Loose Material inventory

<u>Isotope</u>	<u>Activity</u>	<u>Location</u>	<u>Waste</u>	<u>Activity</u>	<u>Location</u>

OPERATIONS

	Yes	No	NA
F) Shipping and Transportation			
(1) Written procedures available for shipping and receipt:	___	___	___
(2) Procedures adequate:	___	___	___
(3) Staff trained and knowledgeable in procedures:	___	___	___
(4) Comments:			

	Yes	No	NA
G) Leak Tests			
(1) Tests Made:	___	___	___
(2) By Whom:	___	___	___
(3) Tests Made at Required Frequency:	___	___	___
(4) Records Adequate (actual values compared to action levels)	___	___	___
(5) Comments: (kit used?)			

H) Instrumentation:

(1) Survey Instruments (type, operational, calibrated, etc.):

<u>Manufacturer</u>	<u>Model</u>	<u>Type</u>	<u>SN</u>	<u>Cal. date</u>	<u>Cal. Service</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

(2) Problems:

(3) Operational check method:

I) Lockout/Tagout procedures in place for fixed gauges?
(Describe briefly):

OPERATIONS

	Yes	No	NA
J) Use of volatiles and gases			
(1) Records adequate for emissions? DEC permit or documentation of no need?	___	___	___
(2) Hoods operable and flow adequate?	___	___	___
(3) Face velocity checked and recorded	___	___	___
(4) Filter testing and maintenance performed	___	___	___
(5) Other devices (traps, holdups, etc) testing and maintenance:	___	___	___
K) Posting and labeling adequate (doors, refrigerators, containers, radiation areas)	___	___	___
L) Rules for safe handling and emergency procedures posted and followed (can be posted on "Notice to Employees"):	___	___	___
M) Security procedures adequate and followed?	___	___	___
N) Protective devices provided as needed (circle any of following that are provided): lead and plastic shields, waste containers, tongs, pipetting devices, syringe shields, sharps, containers, protective clothing, gloves, respirators.	___	___	___
O) Work and storage spaces adequate (size, impervious surfaces, lockable)	___	___	___
P) Comments (Brief description of operations and storage facility for RAM):			

PERSONNEL MONITORING

A) Personnel Monitoring - External

1. Badges assigned as per licensee statements: _____ Type of badge _____
2. Badge supplier NVLAP approved? _____. Frequency _____
3. Exposures consistent with type and use?
4. Monitoring records reviewed for the period _____ to _____.
5.

<u>Whole body</u>	<u>Extremity</u>
YTD max _____	YTD max _____
Yearly max: _____ yr.: _____	Yearly max: _____ yr.: _____
Monthly max: _____ date: _____	Monthly max: _____ date: _____
6. ALARA Level (trigger for follow-up):
7. RSO checks periodically on badge use? _____.
(Sees that badges are worn appropriately, stored properly, exposures OK, ALARA follow-ups done)
8. Comments, (control storage, badge storage, dosimeters used, staff observed not wearing badges, late returns, records incomplete, ALARA actions):

B) Personnel Monitoring - Internal Urine _____ Thyroid _____

1. Potential for exposure to airborne RAM exists? _____
 2. Monitoring for airborne RAM conducted _____
 3. Monitoring records adequate? _____
- Comments:

PERSONNEL MONITORING

4. Calculations done to assess airborne RAM? _____

Comments:

5. Bioassay procedures acceptable? _____

Comments: (equipment, calibration, LLD, calculations to compare to MPC-hrs, reproducible geometry).

6. Bioassay records:

Records for the period _____ to _____ were reviewed.

Action level for: urine _____

thyroid _____

Monthly/weekly max: urine _____

thyroid _____

Annual max: urine _____

thyroid _____

Comments:

INSTRUCTIONS

A) Instruction of Personnel:

	Yes	No	NA
(1) Personnel instructed before work and annually (including transportation regs and procedures)	___	___	___
• DOT Hazmat training within 90 days of employment	___	___	___
• Refresher training every two years	___	___	___
• DOT driver training or CDL license with hazardous material endorsement (before transport of RAM)	___	___	___
(2) Do Personnel participate in:			
(i) on-the-job training?	___	___	___
(ii) outside training by _____	___	___	___
(3) Applicable Safety Document(s) Available to Personnel	___	___	___
(4) Personnel instructed in emergency procedures with dry-runs where appropriate (large licenses and radiopharmacies)	___	___	___
(5) Emergency Procedures Posted (or on "Notice")	___	___	___
(6) License available	___	___	___
(7) Part 38 available	___	___	___
(8) "Notice to Employees" Posted	___	___	___
(9) Operating and Emergency Procedures Manual available	___	___	___
(10) Comments (records of training, topics, covered, personnel interviewed exhibit knowledge. Describe who does training and methods used, number of hours.):			

PERFORMANCE ASSESSMENT

(Inspector should observe staff performance of meter surveys, wipe tests, dose calibrator QC, etc. to the extent possible)

A) Observations made and comments:

B) Staff knowledgeable of tests to be done, action levels and use of equipment?

Yes No NA

(1) Badges worn?	—	—	—
(2) Knowledge of tests to be done and operation of meters and other equipment?	—	—	—
(3) Knowledge of action levels and actions to be taken?	—	—	—

CONFIRMATORY MEASUREMENTS

	Yes	No	NA
(A) Ambient Radiation Levels Acceptable	___	___	___
(B) Presence of Surface Contamination Found	___	___	___
(C) Surface Contamination Removable	___	___	___
(D) Instrument(s) Used (make, model, serial number, calibration date)	___	___	___
(E) Wipes Taken For Lab Analysis (and results attached)	___	___	___
(F) Sketch(es) (attach other pages as needed):			

BROAD LICENSE REVIEW

(A)Committee

- (1) Members:
- (2) Meetings (frequency, dates):
- (3) Minutes:
- (4) Evidence of review of applications for use?
- (5) Evidence of review of RSO's activities (annual audits of program)?
- (6) Evidence of committee involvement in enforcement?

(B)Radiation Safety Officer

- (1) Documentation of periodic inspections of laboratories:
 - (a) frequency adequate?
 - (b) scope adequate?
 - (c) enforcement notices sent/given?
 - (d) follow-up on corrections made?
 - (e) escalated enforcement procedures exist and used where indicated?
- (2) Facility-wide oversight of program?
 - (a) inventories done?
 - (b) control over ordering, receipt, transfer and disposal of RAMs adequate?

BROAD LICENSE REVIEW

(C)Management

- (1) Management represented on Committee and attends meetings?
- (2) Problems and issues unresolved by Committee reported to management for review?
- (3) RSO has direct access to management if needed to protect health and safety?

(D)Comments:

LABORATORY SURVEY FORM

Licensee _____

License No. _____

Lab name or Room No. _____

Lab Supervisor _____

Staff Interviewed _____

General condition (Sat or Unsat) _____

Nuclides _____

Activity _____

Operating Procedures Posted _____ Accessible _____ Known _____

Emergency Procedures Posted _____ Accessible _____ Known _____

"Notice" posted _____ Labels/signs OK _____

Meter available _____ Appropriate _____ Cal. & working _____

Hands/Clothes surveyed _____ Frequency _____

Use areas surveyed _____ Frequency _____

Wipe surveys _____ Frequency _____

Use records _____ Disposal records _____

Food/Drink/Smoke _____

Coats & gloves used _____ Hood used _____

Security

Comments:
