
Commonwealth of Virginia Radiation Protection Regulatory Guide



Guidance for Uses of Sealed Sources

EPI-720 K

Virginia Department of Health
Radioactive Materials Program
109 Governor Street, Room 730
Richmond, VA 23219

EXECUTIVE SUMMARY

Virginia Regulatory Guides (VAREGS) are issued to describe and make available to the applicant or licensee, acceptable methods of implementing specific parts of **12 VAC 5- 481, “Virginia Radiation Protection Regulations”**, to delineate techniques used by the staff in evaluating past specific problems or postulated accidents, and to provide guidance to applicants or licensees. VAREGS are not substitutes for **12 VAC 5-481, “Virginia Radiation Protection Regulations”**, therefore compliance with them is not required. Methods and solutions different from those set forth in this guide will be acceptable if they provide a basis for the Virginia Department of Health (VDH), Radioactive Materials Program to determine if a radiation protection program meets the current rule and protects health and safety.

Comments and suggestions for improvements in this VAREG are encouraged and it will be revised, as appropriate, to accommodate comments and to reflect new information or experience. Comments should be sent to: **Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.**

Requests for single copies of this guide (which may be reproduced) can be made in writing to: Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

This VAREG, ‘Guidance for Uses of Sealed Sources’ has been developed to streamline the application process for a Sealed Source license. A copy of the application VDH form, ‘Application for A Radioactive Material License Authorizing the Use of Sealed Sources’ is located in **Appendix A** of this guide.

Appendixes C through **K** provide examples, models and additional information that can be used when completing the application.

It typically takes 60-90 days for a license to be processed and issued if the application is complete. When submitting the application be sure to include the appropriate application fee listed in **12 VAC 5-490.**

In summary, the applicant will need to do the following to submit an application for a commercial Sealed Source license:

- Use this regulatory guide to prepare the application, VDH form, 'Application for a Radioactive Material License Authorizing the Use of Sealed Sources' (**Appendix A**).
- Complete the application, VDH form, 'Application for a Radioactive Material License Authorizing the Use of Sealed Sources' (**Appendix A**). See 'Contents of Application' of the guide for additional information.
- Include any additional attachments.

All supplemental pages should be on 8 ½" x 11" paper.

Please identify all attachments with the applicant's name and license number (if a renewal).

- Avoid submitting proprietary information unless it is absolutely necessary.
- Submit an original signed application along with attachments (if any).
- Submit the application fee (for new licenses only).
- Retain one copy of the licensee application and attachments (if any) for your future reference. You will need this information because the license will require that radioactive material be possessed and used in accordance with statements, representation, and procedures provided in the application and supporting documentation.

If you have any questions about the application process please contact this office at (804) 864-8150.

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ABBREVIATIONS

ALARA	As low as reasonably achievable
ALI	annual limit on intake
AU	Authorized User
bkg	Background
Bq	Becquerel
cc	centimeter cubed
CDE	Committed Dose Equivalent
CEDE	Committed Effective Dose Equivalent
Ci	Curie
CFR	Code of Federal Regulations
cc	centimeter cubed
cm ²	centimeter squared
cpm	counts per minute
C/kg	Coulombs/Kilogram
cpm	Counts Per Minute
DFP	Decommissioning Funding Plan
DIS	Decay-In-Storage
DOE	United States Department of Energy
DOT	United States Department of Transportation
dpm	Disintegrations Per Minute
EDE	Effective Dose Equivalent
EPA	United States Environmental Protection Agency
F/A	Financial Assurance
FDA	United States Food and Drug Administration
FR	Federal Register
G-M	Geiger-Mueller
GBq	Gigabecquerel
IN	Information Notice
LLW	Low Level Waste
GPO	Government Printing Office
IN	Information Notice
MBq	Megabecquerel
mCi	millicurie
mGy	Milligray
mR	Milliroentgen
mrem	millirem
mSv	millisievert
NIST	National Institute of Standards and Technology
NRC	United States Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
OSL	Optical Stimulated Luminescent Dosimeters
R	Roentgen
RG	Regulatory Guide
RQ	Reportable Quantities
RQ	Reportable Quantities
RSO	Radiation Safety Officer
SDE	Shallow Dose Equivalent
SI	International System of Units (abbreviated SI from the French Le Systeme Internationale d'Unites)

SS&D	Sealed Source and Devices Bulletin Board System (BBS)
SSDR	Sealed Source and Device Registration
Sv	Sievert
T1/2	Half-life
TEDE	Total effective dose equivalent
TI	Transportation Index
TLD	Thermoluminescent dosimeters
VDH	Virginia Department of Health
μCi	microcurie
%	percent

PURPOSE OF GUIDE

This document provides guidance to an applicant in preparing a sealed source license application for sources other than portable gauges, XRFs or fixed gauges. It also provides on VDH's criteria for evaluating a Sealed Source license application. It is not intended to address the commercial aspects of manufacturing, distribution, and service of devices containing sealed sources.

This guide addresses radiation safety issues associated with sealed sources such as calibration and reference sources. If higher activity sources are being requested, consult with the VDH staff for the appropriate guidance and application form.

This report identifies information needed to complete VDH form, 'Application for Radioactive Material License Authorizing the Use of Sealed Sources.' (**Appendix A**).

The format within this document for each item of technical information is as follows:

- **Rule**--references the requirements from **12 VAC 5-481 'Virginia Radiation Protection Regulations'** applicable to the item;
- **Criteria**--outlines the criteria used to judge the adequacy of the applicant's response;
- **Discussion**--provides additional information on the topic sufficient to meet the needs of most readers; and
- **Response from Applicant**--provides suggested response(s), offers the option of an alternative reply, or indicates that no response is needed on that topic during the licensing process.

The information submitted in the application must be sufficient to demonstrate that proposed equipment, facilities, personnel, and procedures are adequate to protect the health and safety of the citizens of Commonwealth of Virginia according with the agency's guidelines. Submission of incomplete or inadequate information will result in delays in the approval process for the license. Additional information will be requested when necessary to ensure that an adequate radiation safety program has been established. Such requests for additional information will be requested when necessary. Such requests for additional information will delay completion of the application's review and may be avoided by a thorough study of the rule(s) and these instructions prior to submitting the application.

12 VAC 5-481 'Virginia Radiation Protection Regulations' requires the applicant and/or licensee to develop, document, and implement procedures that will ensure compliance with the rule. The appendices describe radiation protection procedures. Each applicant should read the rule and procedures carefully and then decide if the procedure addresses specific radiation protection program needs at the applicant's facility. Applicants may adopt a procedure included in this VAREG or they may develop their own procedures to comply with the applicable rule.

In this guide, "dose" or "radiation dose" means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent (TEDE). These terms are defined in the **12 VAC 5-481-10**. Rem and Sievert (Sv), its SI equivalent (1 rem = 0.01 Sv), are used to describe units of radiation exposure or dose. These units are used because **12 VAC 5-481 'Virginia Radiation Protection Regulations', Part IV 'Standards for Protection Against Radiation'**, sets dose limits in terms of rem, not rad or roentgen. A useful rule of thumb is an exposure of 1 roentgen is equivalent to an absorbed dose of 1 rad and dose equivalent of 1 rem.

The VAREG shows the requirements in terms of the **12 VAC 5-481 'Virginia Radiation Protection Regulations'** and provides a user-friendly format to assist with the preparation of a Sealed Source license application.

LICENSES

Applicants should study this document, related guidance, and all applicable regulations carefully before completing the VDH form 'Application for a Radioactive Material License Authorizing the Use of Sealed Sources'. VDH expects licensees to provide requested information on specific aspects of their proposed radiation protection program in attachments to the application. When necessary, the agency may ask the applicant for additional information to gain reasonable assurance that an adequate radiation protection program has been established.

After a license is issued, the licensee must conduct its program in accordance with the following:

- Statements, representations, and procedures contained in the application and in correspondence with VDH;
- Terms and conditions of the license; and
- **12 VAC 5-481 'Virginia Radiation Protection Regulations'**.

THE ‘AS LOW AS IS REASONABLY ACHIEVABLE (ALARA)’ CONCEPT

12 VAC 5-481-630, Radiation protection programs, states that “*each licensee shall develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities*” and “*the licensee shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are...ALARA.*” This section also requires that licensees review the content of the radiation protection program and its implementation annually.

Information directly related to radiation protection standards in 12 VAC 5-481 ‘**Virginia Radiation Protection Regulations**’, Part IV ‘**Standards for Protection Against Radiation**’, is contained in:

- NRC’s NUREG-1736, ‘Consolidated Guidance: 10 CFR Part 20 - Standards for Protection Against Radiation.’

Applicants should consider the ALARA philosophy detailed in these reports when developing plans to work with licensed radioactive materials.

WHO REGULATES AT FACILITIES IN THE COMMONWEALTH OF VIRGINIA?

In the special situation of work at federally controlled sites in Commonwealth of Virginia, it is necessary to know the jurisdictional status of the land to determine whether Nuclear Regulatory Commission (NRC) or VDH has regulatory authority. NRC has regulatory authority over land determined to be under “exclusive federal jurisdiction,” while VDH has jurisdiction over non-exclusive federal jurisdiction land (see **Table 1**). Applicants and licensees are responsible for finding out, in advance, the jurisdictional status of the specific areas where they plan to conduct licensed operations. VDH recommends that applicants and licensees ask their local contacts for the federal agency controlling the site (e.g., contract officer, base environmental health officer, district office staff) to help determine the jurisdictional status of the land and to provide the information in writing, so that licensees can comply with NRC or VDH regulatory requirements, as appropriate. The following table lists examples of regulatory authority.

Table 1. Who Regulates the Activity?

Applicant and Proposed Location of Work	Regulatory Agency
Federal agency regardless of location (except that Department of Energy [DOE] and, under most circumstances, its prime contractors are exempt from licensing [10 CFR 30.12])	NRC
Non-federal entity in non-Agreement State, U.S. territory, or possession	NRC
Non-federal entity in Virginia at non-federally controlled site	VDH
Non-federal entity in Virginia at federally-controlled site not subject to exclusive federal jurisdiction	VDH
Non-federal entity in Virginia at federally-controlled site subject to exclusive federal jurisdiction	NRC

A current list of Agreement States (States that have entered into agreements with the NRC that give them the authority to license and inspect radioactive material used or possessed within their borders), including names, addresses, and telephone numbers of responsible officials are maintained by the NRC Office of Federal and State Materials and Environmental Management Programs and is available on their website: <http://nrc-stp.ornl.gov/>.

MANAGEMENT RESPONSIBILITY

VDH endorses the philosophy that effective radiation protection program management is vital to safe operations that comply with VDH regulatory requirements.

“Management” refers to the chief executive officer or other individual having the authority to manage, direct, or administer the licensee’s activities or that person’s delegate or delegates.

To ensure adequate management involvement, a management representative (i.e., chief executive officer or delegate) must sign the submitted application acknowledging management’s commitments to and responsibility for the following:

- Radiation protection, security and control of radioactive materials, and compliance with rule;
- Knowledge about the contents of the license application;
- Compliance with current VDH and United States Department of Transportation (DOT) regulations and the licensee’s operating and emergency procedures;
- Provision of adequate resources (including space, equipment, personnel, time, and, if needed, contractors) to the radiation protection program to ensure that the public, and workers are protected from radiation hazards;
- Appointment of a qualified individual who has agreed in writing to work as RSO;

Management may delegate individuals (i.e., an RSO or other designated individual) to submit amendment requests to VDH. A correspondence delegation letter must be completed, signed by management and submitted to VDH.

APPLICABLE RULE

It is the applicant's or licensee's responsibility to obtain, read, and follow **12 VAC 5-481, 'Virginia Radiation Protection Regulations'**.

The following parts of **12 VAC 5-481, "Virginia Radiation Protection Regulations"** contain requirements applicable to sealed sources licensees:

- Part I: 'General Provisions'
- Part III: 'Licensing of Radioactive Materials';
- Part IV: 'Standards for Protection from Radiation'
- Part X: 'Notices, Instructions and Reports to Workers'
- Part XIII: 'Transportation'

Requests for single copies of the above documents (which may be reproduced) can be made in writing to:

Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730,
Richmond, VA 23219 or for an electronic copy go to our web site at:

<http://www.vdh.virginia.gov/rad/RHP-Index.asp>.

HOW TO FILE

Applicants for a materials license should do the following:

- Be sure to use the current guidance from VDH in preparing an application.
- Complete VDH form, 'Application for Radioactive Material License Authorizing the Use of Sealed Sources' (**Appendix A**).
- For each separate sheet, other than submitted with the application, identify and key it to the item number on the application, or the topic to which it refers.
- Submit all documents on 8 ½ x 11 inch paper.
- Avoid submitting proprietary information unless it is absolutely necessary.
- Submit an original, signed application.
- Retain one copy of the license application for your future reference.

Deviations from the suggested wording of responses as shown in this VAREG or submission of alternative procedures will require a more detailed review.

Note: Personal employee information (i.e., home address, home telephone number, Social Security Number, date of birth, and radiation dose information) should not be submitted unless specifically requested by VDH.

WHERE TO FILE

Applicants wishing to possess or use radioactive material in Commonwealth of Virginia are subject to the requirements of **12 VAC 5-481, “Virginia Radiation Protection Regulations”** and must file a license application with:

**Virginia Department of Health
Radioactive Materials Program
109 Governor Street, Room 730
Richmond, VA 23219**

LICENSE FEES

The appropriate fee must accompany each application or license amendment request. Refer to **12 VAC 5-490** to determine the amount of the fee. VDH will not issue the new license prior to fee receipt. Once technical review has begun, no fees will be refunded. Application fees will be charged regardless of VDH's disposition of an application or the withdrawal of an application.

Licensees are also subject to annual fees; refer to **12 VAC 5-490**.

Direct all questions about VDH' fees or completion of **Item 10** of VDH form, "Application for Radioactive Material License Authorizing the Use of Sealed Sources" (**Appendix A**) to: Virginia Department of Health,, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219 or call (804) 864-8150.

CONTENTS OF AN APPLICATION

Item 1: Type of Application

On the application check the appropriate box and, if appropriate, note the license number for renewal.

Response from Applicant:

Item 1 Type of Application (Check one box) <input type="checkbox"/> New License <input type="checkbox"/> Renewal License Number

Item 2: Name and Mailing Address of Applicant

List the legal name of the applicant's corporation or other legal entity with direct control over use of the radioactive material; a division or department within a legal entity may not be a licensee. An individual may be designated as the applicant only if the individual is acting in a private capacity and the use of the radioactive material is not connected with employment in a corporation or other legal entity. Provide the mailing address where correspondence should be sent. A Post Office box number is an acceptable mailing address.

Notify the Agency of changes in the mailing address.

Response from Applicant:

Item 2. Name and Mailing Address of Applicant
Applicant's Telephone Number (Include Area Code)

Note: The agency must be notified in the event of change of ownership or control and bankruptcy proceedings; see below for more details.

Timely Notification of Transfer of Control:

Rule: 12 VAC 5-481-330, 12 VAC 5-481-450, 12 VAC 5-481-490

Criteria: Licensees must provide full information and obtain the agency's **written consent prior** to transferring ownership or control of the license, or, as some licensees call it, "transferring the license."

Discussion: Transfer of control may be the results of mergers, buyouts, or majority stock transfers. Although it is not the agency's intent to interfere with the business decisions of licensees, it is necessary for licensees to obtain prior agency written consent. This is to ensure the following:

- Radioactive materials are possessed, used, or controlled only by persons who have valid licenses issued by VDH, NRC or another Agreement State;
- Materials are properly handled and secured;
- Persons using these materials are competent and committed to implementing appropriate radiological controls;
- A clear chain of custody is established to identify who is responsible for final disposal of the sealed source; and
- Public health and safety are not compromised by the use of such materials.

Appendix C identifies the information to be provided about changes of ownership or transfer of control.

Notification of Bankruptcy Proceedings

Rule: 12 VAC 5-481-490 E & F

Criteria: Immediately following filing of voluntary or involuntary petition for bankruptcy, the licensee must notify VDH, in writing, identifying the bankruptcy court in which the petition was filed and the date of filing.

Discussion: Even though a licensee may have filed for bankruptcy, the licensee remains responsible for all regulatory requirements. VDH needs to know when licensees are in bankruptcy proceedings in order to determine whether all licensed material is accounted for and adequately controlled, and whether there are any public health and safety concerns (e.g.; contaminated facility). VDH shares the results of its determinations with other involved entities (e.g.; trustees), so that health and safety issues can be resolved prior to completion of bankruptcy proceedings.

Item 3: Person To Be Contacted Regarding Application

Criteria: Identify the individual who can answer questions about the application and include his or her telephone number.

Discussion: This is typically the proposed Radiation Safety Officer (RSO), unless the applicant has named a different person as the contact. The agency will contact this individual if there are questions about the application.

Notify the agency if the contact person or his or her telephone number changes so that the agency can contact the applicant or licensee in the future with questions, concerns, or information. This notice is for "information only" and does not require a license amendment or a fee.

Response from Applicant:

<p>Item 3. Person to Contact Regarding this Application</p> <p>Contact's Telephone Number (Include Area Code)</p>
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Item 4: Address(es) Where Radioactive Material Will Be Used or Possessed

Rule: 12 VAC 5-481-450, 12 VAC 5-481-490

Criteria: Applicants must provide a specific address for each location where radioactive material will be used, stored, or dispatched.

Discussion: Specify the street address, city, and state or other descriptive address (e.g., on Highway 58, 5 miles east of the intersection of Highway 11E and State Route 16, Anytown, VA) for each facility at which licensed material will be used or stored. The descriptive address should be sufficient to allow a VDH inspector to find the use/storage location. **A Post Office Box address is not acceptable.** In addition, state whether the sealed sources will be used at temporary jobsites.

Response from Applicant:

Item 4 List all address(es) where radioactive material(s) will be used or possessed. (Attach additional pages if necessary)		
	Address (Do not use Post Office box)	Telephone Number (Include area code)
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored		
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored		
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored		

Are sealed sources used at temporary jobsites?: Yes No

Obtaining a VDH license does not relieve a licensee from complying with other applicable Federal, State, or local regulations (e.g., local zoning requirements for storage locations).

Note: As discussed later under "Financial Assurance and Record keeping for Decommissioning," licensees need to maintain permanent records on where licensed material was used or stored while the license was in force. This is important for making future determinations about the release of these locations for unrestricted use (e.g., before the license is terminated). For licensees, acceptable records are sketches or written descriptions of storage or use

locations specifically listed on the license. Licensees do not need to maintain this information for temporary job sites or temporary storage locations where sources have never leaked.

Item 5: Radiation Safety Officer (RSO)

Rule: 12 VAC 5-481-450 A, 12 VAC 5-481-480 B

Criteria: RSO must have adequate training and experience. The RSO is responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures.

Discussion: The person responsible for the radiation protection program is called the RSO. The RSO needs independent authority to stop operations that he or she considers unsafe. He or she must have sufficient time and commitment from management to fulfill certain duties and responsibilities to ensure that radioactive materials are used in a safe manner. VDH requires the name of the RSO on the license to ensure that licensee management has identified a qualified person and that the named individual knows of his or her designation as RSO. This individual should have specific training and experience in the use and handling of sealed sources.

Response from Applicant:

Item 5 Radiation Safety Officer (RSO) (Check both boxes)	
<input type="checkbox"/> The name of the proposed RSO and other potential designees who will be responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures.	
NAME: _____	TELEPHONE NUMBER: _____ (Include area code)
AND	
<input type="checkbox"/> Information demonstrating that the proposed RSO is qualified by training and experience is attached.	

Note: It is important to notify the agency, as soon as possible, of changes in the designation of the RSO.

Item 6: Authorized Users (AU)

Rule: 12 VAC 5-481-440; 12 VAC 5-481-450; 12 VAC 5-481-2260; 12 VAC 5-481-2270

Criteria: Authorized users must have adequate training and experience.

Discussion: An AU is a person whose training and experience meet VDH's criteria. This individual is named on the license and uses or directly supervises the use of licensed material. AUs must ensure the proper use and security of the sealed sources. An AU is considered to be supervising the use of licensed material when he or she directs personnel in operations involving the material. Although the AU may delegate specific tasks to supervised users (e.g., maintaining records), he or she is still responsible for safe use of licensed material.

A trained individual must perform any operation that involves the removal of a sealed source from a device or maintenance and repair of a device that involves a sealed source. The trained individual shall have received instruction and training in the principles and practices of radiation safety, the use of radiation detection instruments, and the performance of these operations. See **Appendix D** for suggested training topics. In the application, provide the following information:

- Name of each trained individual who will perform the operations
- Outline of the instruction and training that each individual has received. The amount of time spent on each topic in the training should be specified.

Response from Applicant:

<p>Item 6 Authorized Users (check all that apply)</p> <p><input type="checkbox"/> We will attach a list of each proposed authorized user with the types and quantities of licensed material to be used.</p> <p style="text-align: center;">AND</p> <p><input type="checkbox"/> Information is attached demonstrating that each proposed authorized user is qualified by training and experience to use the requested licensed material.</p> <p>NOTE: If requesting authorization to perform non-routine maintenance, submit outline of the instruction and training for individuals performing non-routine maintenance.</p>

Note: Persons who will only use a sealed source and device, if applicable, under the supervision of the trained individual named in **Item 6** need no special training. These individuals should not be permitted to perform any maintenance or repair operations. Only trained individuals specifically named in **Item 6** shall perform such operations.

Item 7: Radioactive Material

Item 7.1: Sealed Sources

Rule: 12 VAC 5-481-440; 12 VAC 5-481-450; 12 VAC 5-481-840; 12 VAC 5-481-850; 12 VAC 5-481-860; 12 VAC 5-481-880; 12 VAC 5-481-3750

Criteria: Licensees will only be authorized for sealed sources and devices listed in the Sealed Source and Device Registry. Sealed sources and devices may be used only for the purposes for which they are designed and specified in an SSD Registration Sheet.

Discussion: Each authorized radioisotope is listed on a VDH license by its element name, form, and the maximum amount the licensee may possess at any one time (maximum possession limit). Licensees must submit a license amendment and receive VDH authorization before they may make changes in the types, forms, and quantities of materials possessed.

Possession limits should be specified in megabecquerels (MBq) [millicuries (mCi)] or gigabecquerels (GBq) [curies (Ci)] for each radioisotope. Applicants should include in the possession limits requested the total estimated inventory, including licensed material in storage and maintained as radioactive waste. The requested possession limits for any radioisotope should be commensurate with the applicant's needs and facilities for safe handling. Applicants, when establishing their possession limits for radioactive materials with half lives greater than 120 days, should review the requirements for submitting a certification for financial assurance for decommissioning, see **Item 7.2**.

Consult with the proposed manufacturer or distributor to ensure that sources and devices conform to the sealed source and device designations registered with NRC or another Agreement State. Licensees may not make any changes to the sealed source, device, or source/device combination that would alter the description or specifications from those indicated in the respective registration certificates, without obtaining VDH's prior permission in a license amendment. Such changes may necessitate a custom review, increasing the time needed to process a licensing action. To ensure that applicants use sources and devices according to the registration certificates, they may want to get a copy of the certificate and review it or discuss it with the manufacturer.

SSD Registration Certificates contain sections on "Conditions of Normal Use" and "Limitation and Other Considerations of Use." These sections may include limitations derived from conditions imposed by the manufacturer or distributor, in particular conditions of use that would reduce radiation safety of the device, or by circumstances unique to the sealed source or device. For example, working life of the device or appropriate temperature and other environmental conditions may be specified. Except as specifically approved by VDH, licensees are required to use devices containing sealed sources according to their respective SSD Registration Certificates. Applicants should obtain a copy of the certificate and review it with the manufacturer or distributor or with the agency, to ensure that they understand and comply with the requirements of the SSD.

Note: If necessary and the manufacturer cannot supply the certificate, SSD Registration Certificates are also available by calling the agency at (804) 864-8150.

The applicant should provide the following:

- The radioisotopes(s) that will be used.
- The manufacturer and model number of the sealed source that will be used.
- The quantity (activity) of radioactive material that will be in each sealed source. Provide the number of sources of sealed source that will be possessed, if known. If the total number for each type of source is unknown, provide an anticipated total.
- The manufacturer and model number of the device containing the sealed source-if applicable.
- The purpose for which each sealed source(s) will be used (e.g., state that possession of sealed sources will be used for commercial calibration of radiation survey instruments and/or personnel dosimetry).

Note: Unusual uses will be evaluated on a case-by-case basis and the authorized use condition will reflect approved uses.

Response from Applicant:

Item 7 Radioactive Material (Attach additional pages if necessary)	
Element and mass number	Chemical and physical form SEALED SOURCE
Source manufacturer and model number	Maximum activity per source
Device manufacturer and model number	Intended use

Item 7.2: Financial Assurance and Record Keeping for Decommissioning

Rule: 12 VAC 5-481-100; 12 VAC 5-481-450 C; 12 VAC 5-481-490 B; 12 VAC 5-481-500; 12 VAC 5-481-560; 12 VAC 5-481-570; 12 VAC 5-481-1160

Criteria: Licensees possessing sealed sources containing radioactive material in excess of the limits specified in 12 VAC 5-481-450 C must provide evidence of financial assurance for decommissioning.

Licensees are required to maintain, in an identified location, decommissioning records related to structures and equipment where sealed sources are used or stored and for any leaking sources. Licensees must transfer records important to decommissioning either to the new licensee before licensed activities are transferred or assigned in accordance with 12 VAC 5-481-490 or to VDH before the license is terminated.

Discussion: The requirements for financial assurance are specific to the types and quantities of radioactive material authorized on a license. Most applicants and licensees do not need to comply with the financial assurance requirements because the thresholds for sealed sources are 3.7×10^6 gigabecquerels (100,000 curies) of cesium-137 or 3.7×10^3 gigabecquerels (100 curies) of americium-241 or californium-252. Since the standard license may not specify the maximum number of sealed sources that the licensee may possess (allowing the licensee flexibility in obtaining sealed sources as needed without amending its license), it may contain a condition requiring the licensee to limit its possession of sealed sources to quantities not requiring financial assurance for decommissioning. Applicants and licensees desiring to possess sealed sources exceeding the threshold amounts must submit evidence of financial assurance.

The same rule also requires that licensees maintain records important to decommissioning in an identified location. All sealed source licensees need to maintain records of structures and equipment where sealed sources are used or stored at locations specifically listed on the license. As-built drawings with modifications of structures and equipment shown as appropriate fulfill this requirement. If drawings are not available, licensees may substitute appropriate records concerning the areas and locations. In addition, if licensees have experienced unusual occurrences (e.g., leaking sources), they also need to maintain records about contamination that remains after cleanup or that may have spread to inaccessible areas.

For sealed source licensees whose sources have never leaked, acceptable records important to decommissioning are sketches or written descriptions of storage or use locations specifically listed on the license. Similar information need not be maintained for temporary job sites.

Licensees must transfer records important to decommissioning either to the new licensee before licensed activities are transferred or assigned in accordance with 12 VAC 5-481-490 or to VDH before the license is terminated.

Reference: NRC Regulatory Guide 3.66 "Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70 and 72," is available from NRC at <http://www.nrc.gov>.

Item 8: Facilities and Equipment

Rule: 12 VAC 5-481-450; 12 VAC 5-481-630; 12 VAC 5-481-730; 12 VAC 5-481-840

Criteria: 12 VAC 5-481-450 states that an application will be approved if the applicant's proposed equipment and facilities are adequate to protect health and to minimize danger to life or property. 12 VAC 5-481-840 also states that licensed material stored in an unrestricted area must be secured from unauthorized removal, and licensed materials in an unrestricted area and not in storage must be under the constant surveillance and immediate control of the licensee.

Discussion: The room or storage area in which the sealed source and device, if applicable, is located should be:

- Accessible only to persons authorized to use the sealed source or device and
- Locked when an authorized person is not physically present.

The application should state that the room or storage area will be locked or secured when an authorized person is not present. The room or storage area cannot be considered a restricted area if it is accessible to unauthorized persons.

The key elements for applicants are ensuring compliance with public dose limits and maintaining adequate security and control over the sealed sources.

Provide the following on the facility diagrams:

- Drawings should be to scale, and indicate the scale used;
- Location, room numbers, and principal use of each room or area where radioactive material is prepared, used or stored, as provided above under the heading 'Discussion';
- Location, room numbers, and principal use of each adjacent room (e.g., office, file, toilet, closet, hallway), including areas above, beside, and below therapy treatment rooms; indicate whether the room is a restricted or unrestricted area as defined in 12 VAC 5-481-10; and
- Provide shielding calculations and include information about the type, thickness and density of any necessary shielding to enable independent verification of shielding calculations, including a description of any portable shields used (e.g., shielding of proposed patient rooms used for implant therapy including the dimensions of any portable shield, if one is used; source storage safe, etc.).

Response from Applicant:

Item 8 Facilities And Equipment (Check box and attach diagram.)

Diagrams of radioactive material storage area(s) are attached.

Item 9: Radiation Safety Program

Item 9.1: Audit Program

Rule: 12 VAC 5-481-450; 12 VAC 5-481-630; 12 VAC 5-481-990

Criteria: Licensees must review the content and implementation of their radiation protection programs annually to ensure the following:

- Compliance with VDH and DOT regulations, and the terms and conditions of the license;
- Occupational doses and doses to members of the public are as low as reasonably achievable (ALARA) (12 VAC 5-481-630); and
- Records of audits and other reviews of program content are maintained for 3 years.

Discussion: Licensees must review the content and implementation of their radiation protection programs annually, to ensure compliance with VDH rules and with the terms and conditions of the license.

Appendix F contains a suggested audit program that is acceptable to VDH. All areas indicated in **Appendix F** may not be applicable to every licensee and may not need to be addressed during each audit.

With regard to audit records, **12 VAC 5-481-990** requires licensees to maintain records of ... audits and other reviews of program content and implementation. The agency has found audit records that contain the following information to be acceptable: date of audit, name of person(s) who conducted audit, persons contacted by the auditor(s), areas audited, audit findings, corrective actions, and follow-up.

Response From Applicant:

Item 9.1 Audit Program

The applicant is not required to submit its audit program to the department for review during the licensing phase. This matter will be examined during an inspection.

Item 9.2: Radiation Monitoring Instruments

Rule: 12 VAC 5-481-450; 12 VAC 5-481-730; 12 VAC 5-481-740; 12 VAC 5-481-750; 12 VAC 5-481-900; 12 VAC 5-481-930; 12 VAC 5-481-1000

Criteria: Licensees must possess, or have access to, radiation monitoring instruments that are necessary to protect health and minimize danger to life or property.

Discussion: Licensees shall possess, or have access to, calibrated radiation measurement instruments or licensed services to perform, as necessary the following:

- Package receipt surveys
- Sealed source leak tests
- Unrestricted area dose rate measurements

For the purposes of this document, survey instruments are defined as any device used to measure the radiation exposure or contamination levels at a licensed facility. Survey instruments that may be used to perform these measurements include exposure rate meters or contamination survey meters.

Applicants should include descriptions of the instrumentation available for use and instrumentation applicants intend to purchase prior to starting licensed activities. The description should include type of instrument and detector and its intended purpose.

VDH requires that calibrations be performed by the instrument manufacturer or a person specifically authorized by VDH, the NRC or another Agreement State. Applicants seeking authorization to perform survey instrument calibrations shall submit procedures for review. **Appendix E** provides information about instrument specifications and calibration procedures.

Response from Applicant:

<p>Item 9.2 Radiation Monitoring Instruments (Check all that apply)</p> <p><input type="checkbox"/> We will have access to a survey meter that meets the Criteria in the section titled "Radiation Monitoring Instruments" in VAREG "Guidance for Uses of Sealed Sources". (Description attached)</p> <p style="text-align: center;">OR</p> <p><input type="checkbox"/> We will possess a survey meter that meets the Criteria in the section titled "Radiation Monitoring Instruments" in VAREG "Guidance for Uses of Sealed Sources."</p> <p style="text-align: center;">AND ONE OF THE FOLLOWING</p> <p><input type="checkbox"/> Each survey meter will be calibrated by an organization licensed by VDH, the NRC or another Agreement State to perform survey meter calibrations.</p> <p style="text-align: center;">OR</p> <p><input type="checkbox"/> We will implement the model survey meter calibration program published in Appendix E in VAREG "Guidance for Uses of Sealed Sources."</p> <p style="text-align: center;">OR</p> <p><input type="checkbox"/> We will submit alternative calibration procedures for agency review. (Procedures are attached)</p>
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Item 9.3: Material Receipt and Accountability

Rule: 12 VAC 5-481-10; 12 VAC 5-481-100; 12 VAC 5-481-450; 12 VAC 5-481-480; 12 VAC 5-481-490; 12 VAC 5-481-560; 12 VAC 5-481-570; 12 VAC 5-481-840; 12 VAC 5-481-900; 12 VAC 5-481-980; 12 VAC 5-481-1060; 12 VAC 5-481-1080; 12 VAC 5-481-1090

Criteria: Licensees must do the following:

- Maintain records of receipt, transfer, and disposal for all sealed sources; and
- Conduct physical inventories at intervals not to exceed 6 months (or some other interval justified by the applicant) to account for all sealed sources.

Discussion: Licensees are required to maintain records of receipt, transfer, and disposal of licensed material. Loss, theft, or misplacement of radioactive material can occur; therefore control and accountability of sealed sources must be ensured. Licensees who use and/or possess sealed sources are required by license conditions to perform inventories of sealed sources every six months. Sealed sources that are not in use may be placed in storage and shall be inventoried at least every 6 months.

Inventory records should be maintained and contain the following types of information:

- Radionuclide and amount (in units of becquerels or curies) of radioactive material in each sealed source;
- Manufacturer's name, model number, and serial number (if appropriate) of each device containing radioactive material;
- Location of each sealed source and device; and
- Date of the inventory.

'Cradle to Grave' Accountability refers to maintaining the radioactive material from the moment it becomes a part of your organization (whether through creation there, delivered to company, etc) through performing the quarterly inventories (ensuring the material's location, etc) until it leaves your organization (through shipment, disposal on/off site, etc)

Response from Applicant:

Item 9.3 Material Receipt And Accountability (Check one box)	
<input type="checkbox"/>	We will conduct physical inventories at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license.
OR	
<input type="checkbox"/>	We will submit a description of the frequency and procedures for ensuring that no sealed sources have been lost, stolen, or misplaced. (Procedures are attached)

Item 9.4: Occupational Dosimetry

Rule: 12 VAC 5-481-630; 12 VAC 5-481-640; 12 VAC 5-481-680; 12 VAC 5-481-700; 12 VAC 5-481-710; 12 VAC 5-481-750; 12 VAC 5-481-760; 12 VAC 5-481-990; 12 VAC 5-481-1000; 12 VAC 5-481-1020; 12 VAC 5-481-1040; 12 VAC 5-481-1100; 12 VAC 5-481-1110; 12 VAC 5-481-1130; 12 VAC 5-481-1140; 12 VAC 5-481-2260; 12 VAC 5-481-2270

Criteria: Applicants must do either of the following:

- Provide dosimetry processed and evaluated by a National Voluntary Laboratory Accreditation Program (NVLAP) approved processor that is exchanged at a frequency recommended by the processor.
- OR
- Maintain, for inspection by VDH, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits as shown in **Table 2**.

Table 2: Occupational Dose Limits For Adults

Occupational Dose Limits for Adults (12 VAC 5-481-640)	
<u>Body Location</u>	<u>Dose (Annual)</u>
Total Effective Dose Equivalent (TEDE)	0.05 Sv (5 Rem)

Dose to the skin of the whole body or any extremity*	0.5 Sv (50 Rem)
Dose to lens of the eyes	0.15 Sv (15 Rem)
*Extremities includes the arms below the elbows and the legs below the knees	

Discussion: Under conditions of routine use, many sealed source users do not require a personnel monitoring device (dosimetry). If a written evaluation demonstrates that sealed source users are not likely to exceed 10 percent of the applicable limits, users are not required to have personnel dosimetry. **Appendix I Part I** provides guidance on preparing this written evaluation.

Licensees who do provide personnel monitoring use either film badges, optically stimulated luminescent (OSLs) dosimetry or thermoluminescent dosimeters (TLDs) that are supplied by a NVLAP-approved processor. Applicants should verify that the processor is NVLAP-approved. Consult the NVLAP-approved processor for its recommendations for exchange frequency and proper use.

Response from Applicant:

<p>Item 9.4 Occupational Dosimetry (Check one)</p> <p><input type="checkbox"/> We will maintain, for inspection by the agency, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits in 12 VAC 5-481-640.</p> <p style="text-align: center;">OR</p> <p><input type="checkbox"/> We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor</p>

Reference: National Institute of Standards and Technology (NIST) Publication 810, "National Voluntary Laboratory Accreditation Program Directory," is published annually and is available for purchase from **United States Government Printing Office** and on the Internet at the following address: <http://nvl.nist.gov/>

Item 9.5: Public Dose

Rule: 12 VAC 5-481-10; 12 VAC 5-481-630; 12 VAC 5-481-720; 12 VAC 5-481-730; 12 VAC 5-481-840; 12 VAC 5-481-1050; 12 VAC 5-481-1110

Criteria: Licensees must do the following:

- Ensure that sealed sources will be used, transported, and stored in such a way that members of the public will not receive more than 1 millisievert (100 millirem) in one year, and the dose in any unrestricted area will not exceed 0.02 millisievert (2 millirem) in any one hour, from licensed operations.
- Control and maintain constant surveillance over sealed sources that are not in storage and secure sealed sources from unauthorized removal or use.

Discussion: "Public dose" is defined in **12 VAC 5-481-10** as the dose received by a member of the public from exposure to radiation and/or radioactive material released by a licensee, or to any other source of radiation under the control of a licensee. Public dose excludes doses received from background radiation and from medical procedures. Whether the dose to an individual is an occupational dose or a public dose

depends on the individuals assigned duties. It does not depend on the area (restricted, controlled, or unrestricted) the individual is in when the dose is received.

Members of the public include persons who live, work, or may be near locations where sealed sources are used or stored and employees whose assigned duties do not include the use of licensed materials and who work in the vicinity where sealed sources are used or stored.

Operating and emergency procedures regarding security and surveillance specified under that section of this document should be sufficient to limit the exposure to the public during use or storage and after accidents. Public dose is controlled, in part, by ensuring that sealed sources not in use are stored securely (e.g., stored in a locked area) to prevent unauthorized access or use.

If sealed sources are not in storage, then authorized users must maintain constant surveillance to ensure that members of the public, who could be co-workers, cannot get near the sealed sources and thus receive unneeded radiation exposure.

Public dose is also affected by the choice of storage location and conditions. Since a sealed source presents a radiation field during storage, it must be stored so that the radiation level in an unrestricted area (e.g., an office or the exterior surface of an outside wall) does not exceed 1 mSv (100 mrem) in a year or 0.02 mSv (2 mrem) in any one hour. Use the concepts of time, distance, and shielding when choosing a permanent or temporary storage location. Decreasing the time spent near an unshielded sealed source, increasing the distance from the unshielded sealed source, and using shielding (i.e., brick, concrete, lead, or other solid walls) will reduce the radiation exposure. As a rule of thumb, sealed sources should be stored as far away as possible from areas that are occupied by members of the public.

Licensees can determine the radiation levels adjacent to the storage location either by calculations or a combination of direct measurements and calculations using any or all of the following: typical known radiation levels provided by the manufacturer, the "inverse square" law to evaluate the effect of distance on radiation levels, and occupancy factors to account for the actual presence of the member of the public and of the sealed sources used. See **Part 2 of Appendix I** for examples.

If, after making an initial evaluation, a licensee makes changes affecting the storage area (e.g., changing the location of sealed sources within the storage or use area, removing shielding, adding sealed sources, changing the occupancy of adjacent areas, moving the storage area to a new location), then the licensee must ensure that sealed sources are properly secured, perform a new evaluation to ensure that the public dose limits are not exceeded, and take corrective action, as needed.

Response from Applicant:

Item 9.5 Public Dose

No response is required, in this license application, however the licensee's evaluation of public dose will be examined during an inspection.

Item 9.6: Operating and Emergency Procedures

Rule: 12 VAC 5-481-450; 12 VAC 5-481-480; 12 VAC 5-481-630; 12 VAC 5-481-740; 12 VAC 5-481-840; 12 VAC 5-481-850; 12 VAC 5-481-860; 12 VAC 5-481-870; 12 VAC 5-481-880; 12 VAC 5-481-890; 12 VAC 5-481-1090; 12 VAC 5-481-1100; 12 VAC 5-481-1110; 12 VAC 5-481-2280

Criteria: Operating and emergency procedures must be developed to minimize risks of loss or theft as well as to ensure safe use of radioactive material. The agency considers security of sealed sources extremely important and lack of security is a significant violation for which licensees are fined.

Discussion: Operating and emergency procedures shall contain the following elements:

- Instructions for using the sealed sources and device-if applicable and performing routine maintenance, according to the manufacturer's recommendations and instructions;
- Instructions for maintaining security during use, storage and transportation;
- Instructions for keeping the sealed source under control and immediate surveillance during use;
- Instructions for keeping radiation exposures ALARA.

Notify the agency when sealed sources are lost or stolen. Refer to **12 VAC 5-481-1090** for a description of when and where notifications are required.

Response from Applicant:

Item 9.6 Operating And Emergency Procedures (Check box)

- Operating and emergency procedures will be developed, implemented, and maintained, and will meet criteria in the section titled 'Operating and Emergency Procedures' in VAREG "Guidance for Uses of Sealed Sources." (Procedures are attached)

Item 9.7: Leak Tests

Rule: 12 VAC 5-481-180; 12 VAC 5-481-740; 12 VAC 5-481-1010; 12 VAC 5-481-1150

Criteria: VDH requires testing to determine whether there is any radioactive leakage from the source in the device. Records of leak tests results must be maintained.

Discussion: The agency finds testing to be acceptable if it is conducted by an organization approved by VDH, the NRC or another Agreement State or according to procedures approved by VDH.

A licensee will be required to ensure performance of leak tests at intervals approved by the NRC or another Agreement State and specified by the SSD Registration Certificate. The measurement of the leak test sample is a quantitative analysis requiring that instrumentation used to analyze the sample be capable of detecting 185 Bq (0.005 μ Ci) of radioactivity.

Manufacturers, consultants, and other organizations may be authorized by VDH, the NRC or another Agreement State either to perform the entire leak test sequence for other licensees or to provide leak test kits to licensees. In the latter case, the licensee is expected to take the leak test sample according to the sealed source manufacturer's (distributor's) and the kit supplier's instructions and return it to the kit supplier for evaluation and reporting results. Leak test samples should be collected at the most accessible area where contamination would accumulate if the sealed source were leaking. Licensees may also be authorized to conduct the entire leak test sequence themselves by adopting the procedures in **Appendix J** or submitting alternative procedures.

Response from Applicant:

Item 9.7 Leak Tests (Check one box)

- Leak tests will be performed by an organization authorized by VDH, the NRC or another Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or another Agreement State to provide leak test kits to other licensees according to kit supplier's instructions.

List name and license number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or another Agreement State)

Organization Name _____ License Number _____

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the Organization is specifically authorized by VDH, NRC, or another Agreement State.

OR

- We will perform leak testing and sample analysis and will follow the procedures in Appendix J of VAREG "Guidance for Uses of Sealed Sources." (Procedures are attached)

OR

- We will submit alternative procedures. (Procedures are attached)

Item 9.8: Maintenance and Repair

Rule: 12 VAC 5-481-480; 12 VAC 5-481-490; 12 VAC 5-481-630

Criteria: Radiation safety procedures must consider the possibility of receiving exposures to the whole body, as well as to the hands, from handling the sealed sources during maintenance and repair. Licensees should keep such exposures ALARA and ensure that the device functions as designed and source integrity is not compromised.

Discussion: Licensees may need to clean and maintain devices containing sealed sources according to manufacturer recommendations and instructions. Written procedures provided by the device manufacturer should be followed. If a procedure other than that provided by the device manufacturer, submit a proposed procedure.

Response from Applicant:

Item 9.8 Maintenance and Repair (Check one box)

- We will send the device to the manufacturer or other person authorized by VDH, the NRC or another Agreement State to perform maintenance or repair operations.
OR
- We will implement and maintain procedures for maintenance of devices containing sealed sources according to each manufacturer's recommendations and instructions.
OR
- We will develop, implement and maintain procedures for maintenance of devices containing sealed sources. (Procedures are attached)
OR
- We will only possess sealed sources not in devices. No maintenance or repair is required.

Item 9.9: Transportation

Rule: 12 VAC 5-481-100; 12 VAC 5-481-570; 12 VAC 5-481-630; 12 VAC 5-481-840; 12 VAC 5-481-2980; 49 CFR Parts 171-178

Criteria: Applicants must develop, implement, and maintain safety programs for public transport of radioactive material to ensure compliance with DOT regulations.

Discussion: If authorization has been requested in the application to use sealed sources at a temporary jobsite, the applicant must consider DOT regulations. The applicant is not required to submit transportation information with the application.

Response from Applicant:

Item 9.9 Transportation

No response is needed during the license process; this issue will be reviewed during inspection.

Item 9.10: Waste Management

Rule: 12 VAC 5-481-100; 12 VAC 5-481-560; 12 VAC 5-481-570; 12 VAC 5-481-910; 12 VAC 5-481-1060

Criteria: Licensed materials must be disposed of in accordance with VDH requirements by transfer to an authorized recipient. Appropriate records must be maintained.

Discussion: The usual disposal option is to transfer the licensed material to an authorized recipient. Authorized recipients are the original supplier of the sealed source or device, a commercial firm licensed by VDH, the NRC or another Agreement State to accept radioactive waste from other persons, or another specific licensee authorized to possess the licensed material. No one else is authorized to receive licensed material.

Response from Applicant:

Item 9.10 Waste Management (Check box)

- We will transfer the sealed source or device containing the sealed source to the manufacturer or a specifically licensed recipient for disposal.

Item 9.11: Termination of Activities

Rule: 12 VAC 5-481-450 C; 12 VAC 5-481-490; 12 VAC 5-481-500; 12 VAC 5-481-560; 12 VAC 5-481-980; 12 VAC 5-481-1160

Criteria: The licensee must do the following:

- Notify the agency in writing, within 60 days of the decision to permanently discontinue all activities involving materials authorized under the license.
- Notify the agency in writing, within 60 days, when principal activities have not been conducted for a period of 24 months.
- Certify the disposition of licensed materials by submission of VDH form 'Certificate of Disposition of Materials'. (See **Appendix B**).
- Before a license is terminated, send the records important to decommissioning (as required by **12 VAC 5-481-450 C**) to the agency. If licensed activities are transferred or assigned in accordance with **12 VAC 5-481-490**, transfer records important to decommissioning to the new licensee.

Discussion: For guidance on the disposition of licensed material, see the **Item 9.10 Waste Management**. For guidance on decommissioning records, see the section on **Item 7.2 Radioactive Materials - Financial Assurance and Record keeping for Decommissioning**.

Response from Applicant:

Item 9.11 Termination Of Activities (Check box)

- We will notify VDH, in writing, 60 days of the decision to permanently cease radioactive material use. (12 VAC 5-481-500 D 1)

Item 10: License Fees

On VDH form, 'Application for Radioactive Material License Authorizing the Use of Sealed Sources', enter the fee category and the amount. Enclose fee with the application.

Response from Applicant:

Item 10 License Fees (Refer to 12 VAC 5-490)

Category:

License Fee Enclosed

Yes No Amount Enclosed \$

Item 11: Certification

Individuals acting in a private capacity are required to sign and date VDH form, 'Application for Radioactive Material License Authorizing the Use of Sealed Sources'. Otherwise, senior representatives of the corporation or legal entity filing the application should sign and date VDH form, 'Application for Radioactive Material License Authorizing the Use of Sealed Sources'.

Representatives signing an application must be authorized to make binding commitments and sign official documents on behalf of the applicant. The agency will return all unsigned applications for proper signature.

Note:

- It is a violation of **12 VAC 5-481-30** to make a willful false statement or representation on applications or correspondence.
- When the application references commitments, those items become part of the licensing conditions and regulatory requirements.

Response from Applicant:

Item 11	
I hereby certify that this application was prepared in conformance with 12 VAC 5-481 , 'Virginia Radiation Protection Regulations' and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.	
SIGNATURE - Applicant Or Authorized Individual	Date signed
Print Name and Title of above signatory	

Appendix A:

VDH Form,
‘Application For Radioactive Material License
Authorizing the Use of Sealed Sources’



APPLICATION FOR RADIOACTIVE MATERIAL LICENSE AUTHORIZING THE USE OF SEALED SOURCES

The Virginia Department of Health (VDH) is requesting disclosure of all information on this application for the purpose of obtaining a radioactive material license. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions – Complete all items. Refer to VAREG “Guidance for The Use of Sealed Sources” for additional information. Use supplementary sheets if necessary. Retain a copy and submit the original of the entire application to the Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

APPLICATION TYPE

Item 1 Type of Application (Check one box)

New License Renewal License Number _____

CONTACT INFORMATION

Item 2. Name and Mailing Address of Applicant

Item 3. Person to contact regarding this application

Applicant's /Telephone Number (Include Area Code)

Contact's Telephone Number (Include Area Code)

LOCATION OF RADIOACTIVE MATERIAL

Item 4 List all address(es) where radioactive material(s) will be used or possessed. (Attach additional pages if necessary)

	Address (Do not use Post Office box)	Telephone Number (Include area code)
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored		
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored		
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored		

Are sealed sources used at temporary jobsites?: Yes No

RADIATION SAFETY OFFICER

Item 5 Radiation Safety Officer (RSO) (Check both boxes)

The name of the proposed RSO and other potential designees who will be responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures.

NAME: _____

TELEPHONE NUMBER: _____
 (Include area code)

AND

Information demonstrating that the proposed RSO is qualified by training and experience is attached.

AUTHORIZED USERS

Item 6 Authorized Users (check all that apply)

We will attach a list of each proposed authorized user with the types and quantities of licensed material to be used.

AND

Information is attached demonstrating that each proposed authorized user is qualified by training and experience to use the requested licensed material.

NOTE: If requesting authorization to perform non-routine maintenance, submit outline of the instruction and training for individuals performing non-routine maintenance.

RADIOACTIVE MATERIAL

Item 7 Radioactive Material (Attach additional pages if necessary)

Element and mass number	Chemical and physical form SEALED SOURCE
Source manufacturer and model number	Maximum activity per source
Device manufacturer and model number	Intended use

FACILITIES AND EQUIPMENT

Item 8 Facilities And Equipment (Check boxes and attach diagram.)

Diagrams of radioactive material storage area(s) are attached.

RADIATION SAFETY PROGRAM

Item 9 Radiation Safety Program

Item 9.1 Audit Program

The applicant is not required to submit its audit program to the agency for review during the licensing phase. This matter will be examined during an inspection.

Item 9.2 Radiation Monitoring Instruments (Check all that apply)

We will have access to a survey meter that meets the Criteria in the section titled "Radiation Monitoring Instruments" in VAREG "Guidance for Uses of Sealed Sources". (Description attached)

OR

We will possess a survey meter that meets the Criteria in the section titled "Radiation Monitoring Instruments" in VAREG "Guidance for Uses of Sealed Sources."

AND ONE OF THE FOLLOWING

Each survey meter will be calibrated by an organization licensed by VDH, the NRC or another Agreement State to perform survey meter calibrations.

OR

We will implement the model survey meter calibration program published in Appendix E in VAREG "Guidance for Uses of Sealed Sources."

OR

We will submit alternative calibration procedures for agency review. (Procedures are attached)

Item 9.3 Material Receipt And Accountability (Check one box)

We will conduct physical inventories at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license.

OR

We will submit a description of the frequency and procedures for ensuring that no sealed sources have been lost, stolen, or misplaced. (Procedures are attached)

Item 9.4 Occupational Dosimetry (Check one)

We will maintain, for inspection by the agency, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits in **12 VAC 5-481-640**.

OR

We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor

Item 9.5 Public Dose

No response is required, in this license application, however the licensee's evaluation of public dose will be examined during an inspection.

Item 9.6 Operating And Emergency Procedures (Check box)

Operating and emergency procedures will be developed, implemented, and maintained, and will meet criteria in the section titled 'Operating and Emergency Procedures' in VAREG "Guidance for Uses of Sealed Sources." (Procedures are attached)

Item 9.7 Leak Tests (Check one box)

Leak tests will be performed by an organization authorized by VDH, the NRC or another Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or another Agreement State to provide leak test kits to other licensees according to kit supplier's instructions.

List name and license number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or another Agreement State)

Organization Name _____ License Number _____

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, NRC, or another Agreement State.

OR

We will perform leak testing and sample analysis and will follow the procedures in Appendix J of VAREG "Guidance for Uses of Sealed Sources" (Procedures are attached).

OR

We will submit alternative procedures (Procedures are attached).

Item 9.8 Maintenance and Repair (Check one box)

We will send the device to the manufacturer or other person authorized by VDH, the NRC or another Agreement State to perform maintenance or repair operations.

OR

We will implement and maintain procedures for maintenance of devices containing sealed sources according to each manufacturer's recommendations and instructions.

OR

We will develop, implement and maintain procedures for maintenance of devices containing sealed sources. (Procedures are attached)

OR

We will only possess sealed sources not in devices. No maintenance or repair is required.

Item 9.9 Transportation

No response is needed during the license process; this issue will be reviewed during inspection.

Item 9.10 Waste Management (Check box)

We will transfer the sealed source or device containing the sealed source to the manufacturer or a specifically licensed recipient for disposal.

Item 9.11 Termination Of Activities (Check box)

We will notify the agency, in writing, within 60 days of the decision to permanently cease radioactive material use. (12 VAC 5-481-500 D 1)

SPECIFIC LICENSE FEE

Item 10 License Fees (Refer to 12 VAC 5-490).

Category:

License Fee Enclosed

Yes No Amount Enclosed \$ _____

CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 11

I hereby certify that this application was prepared in conformance with 12 VAC 5-481 'Virginia Radiation Protection Regulations' and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant or Authorized Individual

Date signed

Print Name and Title of above signatory

Appendix B:
VDH Form
‘Certificate of Disposition of Materials’

Item 8 Records required to be maintained for the license termination requested are available at the following location(s):

Name:

Address:

Contact Person Telephone Number: () - X

Additional remarks (Attach additional pages if necessary.)

CERTIFICATION (To be completed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 10.

The undersigned, on behalf of the licensee, hereby certifies that licensable quantities of radioactive material under the jurisdiction of the Virginia Department of Health are not possessed by the licensee. It is therefore requested that the above referenced radioactive material license be terminated.

SIGNATURE - Applicant or Authorized Individual

Date signed

Print Name and Title of above signatory

Appendix C:
Information Needed for Transfer of Control Application

Information Needed for Transfer of Control Application

Control: Control of a license is in the hands of the person or persons who are empowered to decide when and how that license will be used. That control is to be found in the person or persons who, because of ownership or authority explicitly delegated by the owners, possess the power to determine corporate policy and thus the direction of the activities under the license.

Transferee: A transferee is an entity that proposes to purchase or otherwise gain control of an VDH licensed operation.

Transferor: A transferor is an VDH licensee selling or otherwise giving up control of a licensed operation.

Licensees must provide full information and obtain the agency's **prior written consent** before transferring control of the license. Provide the following information concerning changes of control by the applicant (transferor and/or transferee, as appropriate). If any items are not applicable, so state.

1. Provide a complete description of the transaction (transfer of stocks or assets, or merger). Indicate whether the name has changed and include the new name. Include the name and telephone number of a licensee contact who the agency may contact if more information is needed.
2. Describe any changes in personnel or duties that relate to the licensed program. Include training and experience for new personnel.
3. Describe any changes in the organization, location, facilities, equipment or procedures that relate to the licensed program.
4. Describe the status of the surveillance program (surveys, wipe tests, quality control) at the present time and the expected status at the time that control is to be transferred.
5. Confirm that all records concerning the safe and effective decommissioning of the facility will be transferred to the transferee or to the agency, as appropriate. These records include documentation of surveys of ambient radiation levels and fixed and/or removable contamination, including methods and sensitivity.
6. Confirm that the transferee will abide by all constraints, conditions, requirements and commitments of the transferor or that the transferee will submit a complete description of the proposed licensed program.

Appendix D:

Criteria for Acceptable Training and Experience for Authorized Users

Criteria for Acceptable Training and Experience for Authorized Users Classroom Training

Classroom training may be in the form of lecture, videotape, or self-study that emphasize practical subject matter important to the safe handling of licensed materials. Duration and technical level of training should be commensurate with the expected hazards encountered during routine and emergency conditions.

Frequency of Training

- Before assuming duties with, or in the vicinity of, radioactive materials;
- Whenever there is a significant change in duties, regulations, or the terms and conditions of the license;
- Annually for refresher training.

Suggested Radiation Safety Topics

- Fundamentals of Radiation Safety:
 - Characteristics of radiation;
 - Units of radiation dose and quantity of radioactivity;
 - Hazards of exposure to radiation;
 - Levels of radiation from licensed material;
 - Methods of controlling radiation dose (time, distance, and shielding);
 - ALARA concept.
- Radiation Detection Instruments:
 - Operation;
 - Calibration;
 - Limitations of radiation survey instruments;
 - Radiation survey techniques for measuring radiation field;
 - Radiation survey techniques for measuring removable/fixed contamination;
 - Handling and proper use of personnel monitoring equipment.
- Radiation Protection Equipment and Use:
 - Proper use of protective equipment;
 - Decontamination of contaminated protection equipment.
- **12 VAC 5-481, 'Virginia Radiation Protection Regulations'**
- Licensee's operating and emergency procedures.
- Case histories relevant to operations.

- Course Examination (Didactic):
 - Successful completion of closed-book written/oral examination depending on the complexity and hazards of authorized activities;
 - Review of incorrect answers with student.
- On-the Job Training and Examination (Practical):
 - On-the-job training done under the supervision of a qualified individual (AU, RSO, or manufacturer's representative authorized by VDH, the NRC or another Agreement State) that includes supervised hands-on experience performing the task authorized on the license that are commensurate with the expected hazards during routine and emergency conditions;
 - Practical examination consisting of an assessment by the RSO to ensure that each proposed AU is qualified to work independently and that each individual is knowledgeable of the radiation safety aspects of licensed activities. This may be demonstrated by observing the proposed AU perform licensed activities.
- Discussion and/or drill on emergency procedures.
- Retraining on areas found to be deficient in both the practical and didactic areas.

Classroom Course Instructor Qualifications

The person conducting the training should be a qualified individual (e.g., a person who meets the qualifications for RSO or authorized user on the license and is familiar with the licensee's program). Instructors who provide classroom training to individuals in the principles of radiation and radiation safety should have knowledge and understanding of these principles beyond those obtainable in a course similar to the one given to prospective authorized users. Individuals who provide instruction in the hands-on use of licensed materials should have training and experience that would qualify them to be authorized users, or should possess a thorough understanding of the licensee operations.

Appendix E:

Radiation Monitoring Instrument Specifications and Survey Instrument Calibration Program

Radiation Monitoring Instrument Specifications and Survey Instrument Calibration Program

The specifications in **Table 3** will help the applicants and licensees choose the proper radiation detection equipment for monitoring the radiological conditions at their facilities or job sites.

Table 3. Typical Survey Instruments¹

Portable Instruments Used for Contamination and Ambient Radiation Surveys			
Detectors	Radiation	Energy Range	Efficiency
Exposure Rate Meters	Gamma, X-Ray	FR-R	N/A
Count Rate Meters			
GM	Alpha	All energies (dependent on window thickness)	Moderate
	Beta	All energies (dependent on window thickness)	Moderate
	Gamma	All energies	< 1%
NaI Scintillator	Gamma	All energies (dependent on crystal thickness)	Moderate
Plastic Scintillator	Beta	C-14 or higher (dependent on window thickness)	Moderate
Stationary Instruments Used to Measure Wipe, Bioassay and Effluent Samples			
Detectors	Radiation	Energy Range	Efficiency
LSC*	Alpha	All energies	High
	Beta	All energies	High
	Gamma		Moderate
Gamma Counter (NaI)*	Gamma	All energies	High
Gas Proportional	Alpha	All energies	High
	Beta	All energies	Moderate
	Gamma	All energies	< 1%

¹ Table from The Health Physics & Radiological Health Handbook, Revised Edition, Edited by Bernard Shleien, 1992 (except for * items).

Instrument Calibration Program

Training

Before allowing an individual to perform survey instrument calibrations, the RSO will ensure that he or she has sufficient training and experience to perform independent survey instrument calibrations.

Classroom training may be in the form of lecture, videotape, or self-study and will cover the following subject areas:

- Principles and practices of radiation protection;
- Radioactivity measurements, monitoring techniques, and using instruments;
- Mathematics and calculations basic to using and measuring radioactivity;
- Biological effects of radiation.

Appropriate on-the-job training consists of the following:

- Observing authorized personnel performing survey instrument calibration;
- Conducting survey meter calibrations under the supervision and in the physical presence of an individual authorized to perform calibrations.

Facilities and Equipment for Calibration of Dose Rate or Exposure Rate Instruments

- To reduce doses received by individuals not calibrating instruments, calibrations will be conducted in an isolated area of the facility or at times when no one else is present.
- Individuals conducting calibrations will wear assigned dosimetry.
- Individuals conducting calibrations will use a calibrated and operable survey instrument to ensure that unexpected changes in exposure rates are identified and corrected.

Procedure for Calibrating Survey Instruments

A radioactive sealed source(s) used for calibrating survey instruments will:

- Approximate a point source;
- Have its apparent source activity or the exposure rate at a given distance traceable by documented measurements to a standard certified to be within $\pm 5\%$ accuracy by the National Institutes of Standards and Technology (NIST);
- Approximately the same energy and type of radiation as the environment in which the calibrated device will be employed or develop energy curves to compensate for differing energies;

- For dose rate and exposure rate instruments, the source should be strong enough to give an exposure rate of at least about 7.7×10^{-6} coulombs/kilogram/hour (30 mR/hr) at 100 cm [e.g., 3.1 GBqs (85 mCi) of cesium-137 or 7.8×10^2 MBqs (21 mCi) of cobalt-60].

The three kinds of scales frequently used on dose or dose rate survey meters are calibrated as follows:

- Linear readout instruments with a single calibration control for all scales should be adjusted at the point recommended by the manufacturer or at a point within the normal range of use. Instruments with calibration controls for each scale should be adjusted on each scale. After adjustment, the response of the instrument should be checked at approximately 20% and 80% of full scale. The instrument's readings should be within $\pm 15\%$ of the conventionally true values for the lower point and $\pm 10\%$ for the upper point.
- Logarithmic readout instruments, which commonly have a single readout scale spanning several decades, normally have two or more adjustments. The instrument should be adjusted for each scale according to site specifications or the manufacturer's specifications. After adjustment, calibration should be checked at a minimum of one point on each decade. Instrument readings should have a maximum deviation from the conventionally true value of no more than 10% of the full decade value.
- Meters with a digital display device shall be calibrated the same as meters with a linear scale.
- Readings about 2.58×10^{-4} coulomb/kilogram/hour (1 R/hr) need not be calibrated, but such scales should be checked for operation and response to radiation.
- The inverse square and radioactive decay laws should be used to correct changes in exposure rate due to changes in distance or source decay.

Surface Contamination Measurement Instruments

- A survey meter's efficiency must be determined by using radiation sources with similar energies and types of radiation that the survey instrument will be used to measure or develop energy curves to compensate for differing energies.
- If each scale has a calibration potentiometer, the reading should be adjusted to read the conventionally true value at approximately 80% of full scale, and the reading at approximately 20% of full scale should be observed. If only one calibration potentiometer is available, the reading should be adjusted at mid-scale on one of the scales, and readings on the other scales should be observed. Readings should be within 20% of the conventionally true value.

Procedures for Calibrating, Liquid Scintillation Counters, Gamma Counters, Gas Flow Proportional Counters, and Multichannel Analyzers

A radioactive sealed source used for calibrating instruments will do the following:

- Approximate the geometry of the samples to be analyzed;
- Have its apparent source activity traceable by documented measurements to a standard certified to be within $\pm 5\%$ accuracy by the National Institutes of Standards and Technology (NIST).
- Approximately the same energy and type of radiation as the samples that the calibrated device will be used to measure.

Calibration

- Calibration of survey instruments used in assessing dose or exposure rates must be conducted at 6 to 12 month intervals or after instrument servicing.
- Calibration must produce readings within ± 20 percent of the actual values over the range of the instrument.
- Calibration of liquid scintillation counters will include quench correction.

Calibration Records

Calibration records, for all survey instruments, should indicate the procedure used and the date obtained. The description of the calibration should include:

- The owner or user of the instrument;
- A description of the instrument, including the manufacturer's name, model number, serial number, and type of detector
- A description of the calibration source, including the exposure rate a specified distance or activity on a specified date;
- For each calibration point, the calculated exposure rate or count rate, the indicated exposure rate or count rate, the deduced correction factor (the calculated exposure rate or count rate divided by the indicated exposure rate or count rate), and the scale selected on the instrument;
- For instruments with external detectors, the angle between the radiation flux field and the detector (i.e., parallel or perpendicular);
- For instruments with internal detectors, the angle between the radiation flux field and a specified surface of the instrument;
- For detectors with removable shielding, an indication whether the shielding was in place or removed during the calibration procedure;
- The exposure rate or count rate from a check source, if used;

- The name of the person who performed the calibration and date it was performed.

The following information should be attached to the instrument as a calibration sticker or tag:

- For exposure rate meters, the source isotope used to calibrate the instrument (with correction factors) for each scale;
- The efficiency, of the instrument, for each isotope the instrument will be used to measure (if efficiency is not calculated before each use);
- For each scale or decade not calibrated, an indication that the scale or decade was checked only for function but not calibrated;
- The date of the calibration and the next calibration due date;
- The apparent exposure rate or count rate from the check source, if used.

References:

1. NRC Draft Regulatory Guide FC 413-4, "Guide for the Preparation of Applications for Licenses for the Use of Radioactive Material in Calibrating Radiation Survey and Monitoring Instruments," dated June 1985.
2. "The Health Physics & Radiological Health Handbook, Revised Edition," edited by Bernard Shleien, dated 1992.
3. ANSI N323A-1997, "Radiation Protection Instrumentation Test and Calibration." Copies may be obtained from the American National Standards Institute, 1430 Broadway, New York, NY 10018 or ordered electronically at the following address <http://www.ansi.org>.

Appendix F:
Audit Checklist

NOTE: All areas indicated in audit notes may not be applicable to every license and may not need to be addressed during each audit.

Licensee's name: _____ License No. _____

Auditor: _____ Date of Audit _____ Telephone No. _____

(Signature)

1. AUDIT HISTORY

- a. Last audit of this location conducted on (date) _____
- b. Are audits conducted yearly? **(12 VAC 5-481-630)**
- c. Are records of previous audits maintained? **(12 VAC 5-481-990)**
- d. Were any deficiencies identified during last two audits or two years, whichever is longer?
If yes, were corrective actions taken? (Look for repeated deficiencies).

2. ORGANIZATION AND SCOPE OF PROGRAM

- a. If the mailing address or places of use changed, was the license amended?
- b. If ownership changed was prior VDH consent obtained?
- c. If bankruptcy was filed was VDH notified immediately?
- d. If the RSO was changed, was license amended? Does new RSO meet VDH training requirements?
- e. If the designated contact person changed, was the agency notified?
- f. Does the license authorize all of the VDH regulated radionuclides?
- g. Are the sealed sources and devices being used as described in the Sealed Source and Device (SSD) Registration Certificate or Sheet? Are copies of SSD Certificates available? Are manufacturers' manuals for operation and maintenance available?
- h. Are the actual uses of sealed sources consistent with the authorized uses listed on the license?
- i. Is RSO fulfilling his/her duties?

3. TRAINING AND INSTRUCTIONS TO WORKERS

- a. Are all workers who are likely to exceed 100 mrem (1 mSv) in a year given training annually per **(12 VAC 5-481-2270)**?
- b. Did each authorized user receive training as committed to in the license application?
- c. Are training records maintained for each authorized user?
- d. Did interviews with authorized users reveal that they know the operating and emergency procedures?
- e. Did this audit include observations of authorized users using the sealed sources or devices (i.e., routine use, transporting, storage)?

If yes, was safe handling and security demonstrated during transportation, use and storage of the sealed source?

- f. HAZMAT training provided as required? [49 CFR 172.700, 49 CFR 172.701, CFR 172.702, 49 CFR 172.703, 49 CFR 172.704]

4. RADIATION SURVEY INSTRUMENTS

- a. Does the licensee possess or have access to a survey meter? (L/C)

Is the survey meter calibrated at least annually? (12 VAC 5-481-750)

Are calibration records maintained (12 VAC 5-481-1000)?

5. SEALED SOURCE INVENTORY

- a. Are records kept showing the receipt of each sealed source? (12 VAC 5-481-100 & 12 VAC 5-481-570)
- b. Are all sealed sources physically inventoried every 6 months?
- c. Are records of inventory results maintained (See Item 9.3)?

6. PERSONNEL RADIATION PROTECTION

- a. Are ALARA considerations incorporated into the radiation protection program? (12 VAC 5-481-630)
- b. Is documentation kept showing that unmonitored authorized users receive <10% of limit?
- c. Did unmonitored users' activities change during the year which could put them over 10% of limit?
If yes, was a new evaluation performed?
- d. Is external dosimetry required and is dosimetry provided to users?
- 1) Is the dosimetry supplier NVLAP approved? (12 VAC 5-481-750)
 - 2) Are the dosimeters exchanged at vendors recommended frequency?
 - 3) Are dosimetry reports reviewed by the RSO when they are received?
 - 4) Are the records VDH Forms or equivalent? (12 VAC 5-481-1080)
VDH form "Occupational Exposure Record for a Monitoring Period" completed?
 - 5) If a worker declared her pregnancy, did licensee comply with (12 VAC 5-481-710)?
Are records kept of embryo/fetus dose per (12 VAC 5-481-1040)?
 - 6) Are annual dosimetry reports provided to monitored individuals? (12 VAC 5-481-2280)
- e. Are records of exposures, surveys, monitoring, and evaluations maintained? (12 VAC 5-481-990, 12 VAC 5-481-1000 & 12 VAC 5-481-1040)

7. PUBLIC DOSE AND SECURITY

- a. Are sealed sources stored in a manner to keep doses below 100 mrem (1 mSv) in a year and 2 mrem in any one hour? (12 VAC 5-481-720)

- b. Has a survey or evaluation been performed per **12 VAC 5-481-730**? Have there been any additions or changes to the storage, security, or use of surrounding areas that would necessitate a new survey or evaluation?
- c. Are sealed sources being stored in a manner that would prevent unauthorized use or removal? (**12 VAC 5-481-840**)
- d. Are records of surveys or evaluations maintained? (**12 VAC 5-481-1000 & 12 VAC 5-481-1050**)

8. OPERATING AND EMERGENCY PROCEDURES

- Are operating and emergency procedures available?
- Are they being followed?
- Are they current?

9. LEAK TESTS

- a. Was each sealed source leak tested every 6 months or at other approved intervals? (**12 VAC 5-481-740**)
- b. Was the leak test performed as described in license application?
- c. Are records of results with appropriate information retained for three years (see **Appendix J**)?
- d. Are any sources found leaking and if yes, was VDH notified?

10. MAINTENANCE OF SEALED SOURCE DEVICES

- Is any maintenance of the sealed source device performed?
- If yes, was it performed according to license requirements (e.g., scope of work, authorized individuals performing the work, procedures, dosimetry, survey instrument, compliance with **12 VAC 5-481-640** limits)?

11. TRANSPORTATION OF SEALED SOURCES OR DEVICES

- a. DOT-7A or other authorized packages used? (**49 CFR 173.415, 49 CFR 173.416(b)**)
- b. Package performance test records on file?
- c. Special form sources documentation? (**49 CFR 173.476(a)**)
- d. Package has 2 labels (ex. Yellow-II) with TI, Nuclide, Activity, and Hazard Class? (**49 CFR 172.403, 49 CFR 173.441**)
- e. Package properly marked? (**49 CFR 172.301, 49 CFR 172.304, 49 CFR 172.310, 49 CFR 172.324**)
- f. Package closed and sealed during transport? (**49 CFR 173.475(f)**)
- g. Shipping papers prepared and used? (**49 CFR 172.200(a)**)
- h. Shipping papers contain proper entries? {Shipping name, Hazard Class, Identification Number (UN Number), Total Quantity, Package Type, Nuclide, RQ, Radioactive Material, Physical and Chemical Form, Activity, category of label, TI, Shipper's Name, Certification and Signature, Emergency Response Phone Number, Cargo Aircraft Only (if applicable)} (**49 CFR 172.200, 49 CFR 172.201, 49 CFR 172.202, 49 CFR 172.203, 49 CFR 172.204, 49 CFR 172.604**)
- i. Shipping papers within drivers reach and readily accessible during transport? (**49 CFR 177.817(e)**)
- j. Secured against movement? (**49 CFR 177.834**)

- k. Placarded on vehicle, if needed? (49 CFR 172.504)
- l. Proper overpacks, if used? (49 CFR 173.25)
- m. Any incidents reported to DOT? (49 CFR 171.15, 16)

12. AUDITOR'S SURVEY MEASUREMENTS (IF MADE)

- a. Were radiation surveys performed?
If yes, describe the type, location, and results measurements.
- b. Did any radiation level exceed regulatory limits?
If yes, were corrective actions taken?

13. NOTIFICATION AND REPORTS

- a. Was any radioactive material lost or stolen and reports made to VDH? (12 VAC 5-481-1090)
- b. Did any reportable incidents occur? Are reports made? (12 VAC 5-481-1100, 12 VAC 5-481-1110 & 12 VAC 5-481-1150)
- c. Did any overexposures and high radiation levels occur? Reported? (12 VAC 5-481-1110)
- d. If any events (as described in items a through c above) did occur, what were the root causes? Are corrective actions appropriate?
- e. Is the licensee's management/RSO/authorized individuals aware of how to contact VDH for radiological incidents?
Note: VDH office hour number (804) 864-8150 or
24 hour emergency number (804) 674-2400 or (800) 468-8992.

14. POSTING AND LABELING

- a. Is VDH form, "Notice to Employees" posted? (12 VAC 5-481-2260)
- b. Are 12 VAC 5-481, "Virginia Radiation Protection Regulations", and license documents posted or a notice posted? (12 VAC 5-481-2260)
- c. Were any notice of violation, forfeiture assessment or order issued under § 32.1-229 C 3 or § 32.1-234, or 12 VAC 5-481, "Virginia Radiation Protection Regulations" and any response from the licensee or registrant is posted until removal is authorized by VDH? (12 VAC 5-481-2260)
- d. Are emergency procedures posted?
- e. Are storage/use areas posted, if required? (12 VAC 5-481-860)
- f. Is the sealed source/device properly labeled? (12 VAC 5-481-880)

15. RECORD KEEPING FOR DECOMMISSIONING

- a. Are records kept of information important to decommissioning? (12 VAC 5-481-450 C)
- b. Do records include all information as outlined in 12 VAC 5-481-450 C?

16. INFORMATION NOTICES

- a. Are Information Notices received?
- b. Was appropriate action taken in response?

17. LICENSE CONDITIONS OR ISSUES

Did auditor review license conditions or other issues (e.g., maintenance)?

18. DEFICIENCIES IDENTIFIED IN AUDIT; CORRECTIVE ACTIONS

- a. Summarize problems/deficiencies identified during audit.
If problems/deficiencies were identified in this audit, describe the corrective actions planned or taken.
- b. Are corrective actions planned or taken at ALL licensed locations (not just location audited)?
- c. Provide any other recommendations for improvement.

19. EVALUATION OF OTHER FACTORS

- a. Is senior licensee management appropriately involved with the radiation protection program and RSO oversight?
- b. Does the RSO have sufficient time to perform his/her radiation safety duties?
- c. Does the licensee have sufficient staff to support the radiation protection program?

Appendix G:

Information Needed to Support a Sealed Source Licensee's Request to Perform Maintenance and Repair

Applicants wishing to perform maintenance must use personnel with special training and follow appropriate procedures consistent with the manufacturer's instructions and recommendations that address radiation safety concerns (e.g., use of radiation survey meter, shielded container for the source, personnel dosimetry). Applicants should include the following information:

- Describe the type of work that necessitates performing maintenance on the sealed source device. The principal reason for obtaining this information is to assist the agency in the evaluation of the qualifications of individuals who will conduct the work and the radiation safety procedures they will follow.
- Identify who will perform maintenance, their training and experience, and why they are competent to perform maintenance.
- Submit procedures for the safe handling of the radioactive source while the maintenance is being performed. These procedures should ensure the following:
 - doses to personnel and members of the public are within regulatory limits and ALARA (e.g., use of shielded containers or shielding);
 - the sealed source is secured against unauthorized removal access or under constant surveillance;
 - appropriate labels and signs are used; and
 - manufacturer's instructions and recommendations will be followed.
- Confirm that individuals performing maintenance on the sealed source device will always wear appropriate monitoring devices or that an evaluation will be available to demonstrate that these individuals are not likely to receive, in one year, more than 10 percent of the applicable dose limits. The dose limits are in **Table 2**.
- Verify possession of at least one survey instrument meeting the following criteria:
 - Be capable of detecting gamma radiation;
 - Be capable of measuring from 0.01 to 0.5 mSv/hr [1 to 50 mrem/hr];
 - Be calibrated at least annually with radionuclide point sources emitting radiation of the type and energy of the sealed sources;
 - Be calibrated at least 2 points located at approximately 1/3 and 2/3 of each scale; readings within $\pm 20\%$ are acceptable;
 - Be calibrated by a person specifically licensed by VDH, the NRC, or another Agreement State to calibrate radiation detection instruments; and
 - Be checked for functionality prior to use (e.g., with the gauge or a check source).

Note: Records of instrument calibration must be maintained for 3 years after the record is made (**12 VAC 5-481-1000**).

- Describe steps to be taken to ensure that radiation levels in areas where maintenance will take place do not exceed **12 VAC 5-481-720** limits. For example, applicants can do the following:
 - commit to performing surveys with a survey instrument (as described above);
 - specify where and when surveys will be conducted during maintenance; and
 - commit to maintaining, for 3 years from the date of the survey, records of the survey (e.g., who performed the survey, date of the survey, instrument used, measured radiation levels correlated to location of those measurements), as required by **12 VAC 5-481-1000**.

Appendix H:
Operating and Emergency Procedures

Operating Procedures

- If personnel dosimetry is provided:
 - Always wear your assigned TLD, OSL or film badge when using or around the sealed source;
 - Never wear another person's TLD, OSL or film badge; and
 - Never store your TLD, OSL or film badge near the sealed source.
- Use the sealed source according to the manufacturer's instructions and recommendations.
- Do not touch the unshielded sealed source with your fingers, hands, or any part of your body.
- Do not place hands, fingers, feet, or other body parts in the radiation field from an unshielded sealed source.
- Perform routine cleaning and maintenance according to the manufacturer's instructions and recommendations.
- When not in use, place the sealed source in a secured location.
- After making changes affecting the sealed source storage area (e.g., changing the location of sealed sources within the storage area, removing shielding, adding sealed sources, changing the occupancy of adjacent areas, moving the storage area to a new location), reevaluate compliance with public dose limits and ensure proper security of the sealed sources.

Emergency Procedures for Sealed Sources.

If the sealed source is lost, damaged or stolen, or if any other emergency or unusual incident occurs:

- Immediately secure the area and keep people a safe distance away from the sealed source until the situation is assessed and radiation levels are known. However, perform first aid for any injured individuals and remove them from the area only when medically safe to do so.
- Authorized users and other potentially contaminated individuals should not leave the scene until emergency assistance arrives.
- Notify the persons in order listed below of the situation.
- Follow the directions provided by the person contacted.

NAME*	WORK PHONE NUMBER*	HOME PHONE NUMBER*

* Fill in with (and update, as needed) the names and telephone numbers of appropriate personnel (e.g., the RSO, or other knowledgeable licensee staff, licensee's consultant, Sealed Source manufacturer) to be contacted in case of emergency.

RSO and Licensee Management:

- Arrange for a radiation survey to be conducted as soon as possible by a knowledgeable person using appropriate radiation detection instrumentation. This person could be a licensee employee using a survey meter located at the jobsite or a consultant. To accurately assess the radiation danger, it is essential that the person performing the survey be competent in the use of the survey meter.
- Make necessary notifications to local authorities as well as VDH. Even if not required to do so, you may report ANY incident to VDH by calling **(804) 864-8150 during office hours or (804) 674-2400 or (800) 468-8992 after hours**. VDH notification is required when sealed sources are lost or stolen, when sealed sources are damaged or involved in incidents that result in doses in excess of **12 VAC 5-481-640** and **12 VAC 5-481-720** limits.
- Reports to VDH must be made within the reporting timeframes specified by **12 VAC 5-481-1090** and **12 VAC 5-481-1100**.

Appendix I:
Dosimetry-related Guidance

Part 1:
**Worksheet for Determining if Personnel Dosimetry is
Required for Sealed Source Users**

Worksheet for Determining if Personnel Dosimetry is Required for Sealed Source Users

Instructions: To meet the requirement of 12 VAC 5-481-760 complete Steps 1 through 6 and sign and date the evaluation on the line provided.

Disclaimer: If there is a change in workload or if a new sealed source is acquired a new evaluation will need to be performed.

Step 1.

Determine the radiation level in one of the following ways. Record the results below.

- Obtain from the manufacturer's specifications: the radiation level approximately 30 centimeters from the sealed source, or
- Measure the radiation level with a calibrated survey meter.
 - When making the radiation measurement, place the survey instrument approximately 30 centimeters from the sealed source while following good radiation safety practices.

_____ mrem per hour

Step 2.

Record the average number of minutes per week that the sealed source is used.

_____ minutes per week

Step 3.

Divide the minutes per week (Step 2.) by 60 to determine hours per week and record below.

_____ minutes per week (Step 2.) / 60

= _____ hours per week

Step 4.

Multiply the hours per week (Step 3.) by 52 weeks to equal hours per year and record below.

$$\begin{array}{r} \text{_____ hours per week (Step 3.)} \quad X \quad 52 \text{ weeks} \\ \\ = \text{_____ hours per year} \end{array}$$

Step 5.

Multiply hours per year (Step 4.) by mrem per hour (Step 1.) to equal mrem received per year and record below.

$$\begin{array}{r} \text{_____ hours per year (Step 4.)} \quad X \quad \text{_____ mrem per hour (Step 1.)} \\ \\ = \text{_____ mrem per year} \end{array}$$

Step 6.

Is the # of mrem per year (Step 5.) greater than 500? Yes No

- If yes provide dosimetry as required by 12 VAC 5-481-760
 - If no, proceed to Step 7.
-

Step 7.

Is the # of mrem per year (Step 5.) greater than 100? Yes No

- If yes, and you have an employee that is a declared pregnant worker as defined by 12 VAC 5-481-10 provide dosimetry to that individual. In addition, provide annual radiation safety training as required by 12 VAC 5-481-2270 to all employees that use the sealed source.
- If no, you are not required under 12 VAC 5-481-640 and 12 VAC 5-481-760 provide dosimetry to your employees.

Signature of Person Performing the
Evaluation

Date

Part 2:
**Guidance for Demonstrating that Individual Members of
the Public will not Receive Doses Exceeding the Allowable
Limit**

Licensees must ensure that:

- The radiation dose received by individual members of the public does not exceed 1 mSv (100 mrem) in one calendar year resulting from the licensee's possession and/or use of licensed materials.

Members of the public include persons who live, work, or may be near locations where sealed sources are used or stored. (For storage of sealed sources in personal residences, occupants are considered members of the public.) Employees whose assigned duties do not include the use of licensed materials but who work in the vicinity where sealed sources are used or stored are also considered members of the public.

- The radiation dose in unrestricted areas does not exceed 0.02 mSv (2 mrem) in any one hour.

Typical unrestricted areas may include offices, shops, laboratories, areas outside buildings, property, and non-radioactive equipment storage areas. The licensee does not control access to these areas for purposes of controlling exposure to radiation or radioactive materials. However, the licensee may control access to these areas for other reasons such as security.

Licensees must show compliance with both portions of the rule. Calculations or a combination of calculations and measurements (e.g., using an environmental TLD) are often used to prove compliance.

Calculation Method

The calculation method takes a tiered approach, going through a three-part process starting with a worst case situation and moving toward more realistic situations. It makes the following simplifications: (1) each sealed source is a point source, (2) typical radiation levels encountered when the source is in the shielded position are taken from either the SSD Registration Sheet or the manufacturer's literature, and (3) no credit is taken for any shielding found between the sealed sources and the unrestricted areas.

Part 1 of the calculation method is simple but conservative. It assumes that an affected member of the public is present 24 hours a day and uses only the "inverse square law" to determine if the distance between the sealed source and the affected member of the public is sufficient to show compliance with the public dose limits. Part 2 considers not only distance, but also the time that the affected member of the public is actually in the area under consideration. Part 3 considers distance and the portion of time that both the sealed source and the affected member of the public are present. Using this approach, licensees make only those calculations that are needed to demonstrate compliance. In many cases licensees will need to use the calculation method through Part 1 or Part 2. The results of these calculations typically result in higher radiation levels than would exist at typical facilities, but provide a method for estimating conservative doses which could be received.

Example 1

To better understand the calculation method, we will look at a sealed source licensee. Yesterday, the company's president noted that the new sealed source storage area is very close to his secretary's desk and he asked Joe, the RSO, to determine if the company is complying with **12 VAC 5-481-720**.

The secretary's desk is near the wall separating the reception area from the designated, locked sealed source storage area, where the company is storing its three sealed sources. Joe measures the distances from each sealed source to the wall and looks up in the manufacturer's literature the radiation levels individuals would encounter for each sealed source. **Figure 1** is Joe's sketch of the areas in question and **Table 4** summarizes the information Joe has on each sealed source.

A Bird's Eye View of Office and Gauge Storage Area

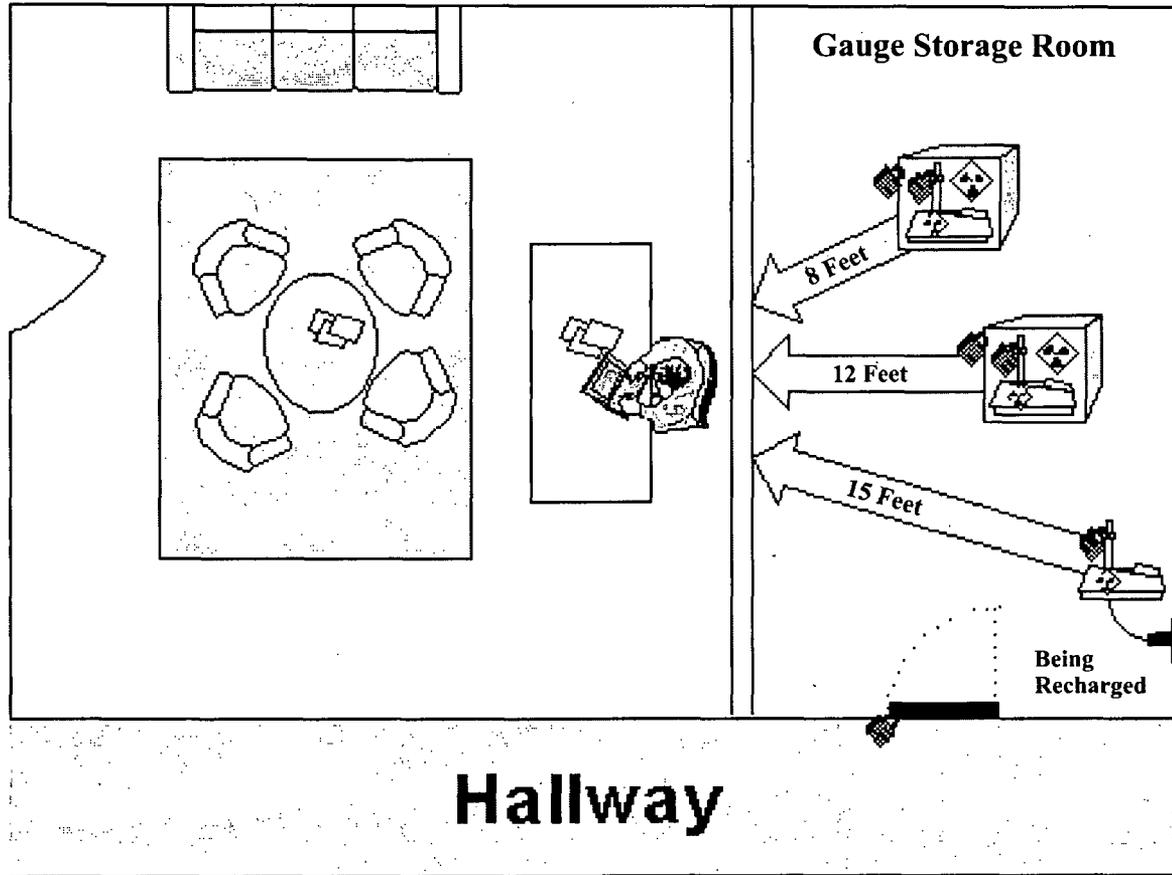


Figure 1. Diagram of Office and Sealed Source Storage Area. This sketch shows the areas described in Examples 1 and 2.

Table 4. Information Known about Each Sealed Source

DESCRIPTION OF KNOWN INFORMATION	GAUGE 1	GAUGE 2	GAUGE 3
How sealed source is stored	Sealed Source in storage container	Sealed Source in storage container	Sealed Source out of storage container
Dose rate in mrem/hr encountered at specified distance from the sealed source (from manufacturer's literature)	2 mrem/hr at 1 ft	8 mrem/hr at 1 ft	2 mrem/hr at 3 ft
Distance in ft to secretary's chair	8 ft	12 ft	15 ft

Example 1: Part 1

Joe's first thought is that the distance between the sealed sources and the secretary's chair may be sufficient to show compliance with the rule in **12 VAC 5-481-720**. So, taking a "worst case" approach, he assumes: 1) the sealed sources are constantly present (i.e., 24 hr/d), 2) all three sealed sources remain in storage with no other use, and 3) the secretary is constantly sitting in the desk chair (i.e., 24 hr/d). Joe proceeds to calculate the dose she might receive hourly and yearly from each sealed source as shown in Tables 5, 6, and 7 below.

Table 5. Calculation Method, Part 1---Hourly and Annual Dose Received from Sealed Source 1

Step No.	Description	Sealed Source 1	
		Input Data	Results
1	Dose received in an hour at known distance from the sealed source (e.g., from manufacturer's data), in mrem/hr	2	2
2	Square of the distance (ft) at which the Step 1 rate was measured, in ft ²	(1) ²	1
3	Square of the distance (ft) from the sealed source to the secretary's desk in an unrestricted area, in ft ²	(8) ²	64
4	Multiply the results of Step 1 by the results of Step 2 (this is an intermediate result)	2 x 1 = 2	
5	Divide the result of Step 4 by the result of Step 3 to calculate the dose received by an individual at the secretary's desk, HOURLY DOSE RECEIVED FROM SEALED SOURCE 1 , in mrem in an hour.	2/64 = 0.031	
6	Multiply the result of Step 5 by 24 hr/d x 365 d/yr = MAXIMUM ANNUAL DOSE RECEIVED FROM SEALED SOURCE 1 , in mrem in a year.	0.031 x 24 x 365 = 0.031 x 8760 = 272	

Table 6. Calculation Method, Part 1---Hourly and Annual Dose Received from Sealed Source 2

Step No.	Description	Sealed Source 2	
		Input Data	Results
1	Dose received in an hour at known distance from the sealed source (e.g., from manufacturer's data), in mrem/hr	8	8
2	Square of the distance (ft) at which the Step 1 rate was measured, in ft ²	(1) ²	1
3	Square of the distance (ft) from the sealed source to the secretary's desk in an unrestricted area, in ft ²	(12) ²	144
4	Multiply the results of Step 1 by the results of Step 2 (this is an intermediate result)	8 x 1 = 8	
5	Divide the result of Step 4 by the result of Step 3 to calculate dose received in an hour by an individual at the secretary's desk, HOURLY DOSE RECEIVED FROM SEALED SOURCE 2 , in mrem in an hour	8/144 = .056	
6	Multiply the result of Step 5 by 24 hr/d x 365 d/yr = MAXIMUM ANNUAL DOSE RECEIVED FROM SEALED SOURCE 2 , in mrem in a year	0.056 x 24 x 365 = 0.056 x 8760 = 491	

Table 7. Calculation Method, Part 1---Hourly and Annual Dose Received from Sealed Source 3

Step No.	Description	Sealed Source 3	
		Input Data	Results
1	Dose received in an hour at known distance from the sealed source (e.g., from manufacturer's data), in mrem/hr	2	2
2	Square of the distance (ft) at which the Step 1 rate was measured, in ft ²	(3) ²	9
3	Square of the distance (ft) from the sealed source to the secretary's desk in an unrestricted area, in ft ²	(15) ²	225
4	Multiply the results of Step 1 by the results of Step 2 (this is an intermediate result)	2 x 9 = 18	
5	Divide the result of Step 4 by the result of Step 3 to calculate dose received by an individual at the secretary's desk, HOURLY DOSE RECEIVED FROM SEALED SOURCE 3 , in mrem in an hour	18/225 = 0.08	
6	Multiply the result of Step 5 by 24 hr/d x 365 d/yr = MAXIMUM ANNUAL DOSE RECEIVED FROM SEALED SOURCE 3 , in mrem in a year	0.08 x 24 x 365 = 0.08 x 8760 = 701	

To determine the total hourly and total annual dose received, Joe adds the pertinent data from the preceding tables.

Table 8. Calculation Method, Part 1---Total Hourly and Annual Dose Received from Sealed Sources 1, 2, and 3

Step No.	Description	Sealed Source 1	Sealed Source 2	Sealed Source 3	Sum
7	TOTAL HOURLY DOSE RECEIVED from Step 5 of Tables 4, 5, and 6, in mrem in an hour	0.031	0.056	0.08	0.031 + 0.056 + 0.08 = 0.167
8	TOTAL ANNUAL DOSE RECEIVED from Step 6 of Tables I-3, I-4, and I-5, in mrem in a year	272	491	701	272 + 491 + 701 = 1464

NOTE: The Sum in Step 7 demonstrates compliance with the 2 mrem in any one hour limit. Reevaluate if assumptions change. If the Sum in Step 8 exceeds 100 mrem/yr, proceed to Part 2 of the calculation method.

At this point, Joe is pleased to see that the total dose that an individual could receive in any one hour is only 0.167 mrem, but notes that an individual could receive a dose of 1,464 mrem in a year, much higher than the 100 mrem limit.

Example 1: Part 2

Joe reviews his assumptions and recognizes that the secretary is not at the desk 24 hr/d. He decides to make a realistic estimate of the number of hours the secretary sits in the chair at the desk, keeping his other assumptions constant (i.e., the gauges are constantly present (i.e., 24 hr/d), all three sealed sources remain in storage with no other use). He then recalculates the annual dose received.

Table 9. Calculation Method, Part 2--Annual Dose Received from Sealed Sources 1, 2, and 3

Step No.	Description	Results
9	A. Average number of hours per day that individual spends in area of concern (e.g., secretary sits at desk 5 hr/day; the remainder of the day the secretary is away from the desk area copying, filing, etc.)	5
	B. Average number of days per week in area (e.g., secretary is part time and works 3 days/week)	3
	C. Average number of weeks per year in area (e.g., secretary works all year)	52
10	Multiply the results of Step 9.A. by the results of Step 9.B. by the results of Step 9.C. = AVERAGE NUMBER OF HOURS IN AREA OF CONCERN PER YEAR	$5 \times 3 \times 52$ = 780
11	Multiply the sum in Step 7 by the results of Step 10 = ANNUAL DOSE RECEIVED FROM SEALED SOURCES CONSIDERING REALISTIC ESTIMATE OF TIME SPENT IN AREA OF CONCERN , in mrem in a year	$0.167 \times 780 = 130$

NOTE: If Step 11 exceeds 100 mrem in a year, proceed to Part 3 of the calculation method.

Although Joe is pleased to note that the calculated annual dose received is significantly lower, he realizes it still exceeds the 100 mrem in a year limit.

Example 1, Part 3

Again Joe reviews his assumptions and recognizes that the sealed sources are not always in storage when the secretary is seated at the desk. As he examines the situation, he realizes he must consider each sealed source individually.

Table 10. Calculation Method, Part 3---Summary of Information

INFORMATION ON WHEN SEALED SOURCES ARE PRESENT IN THE STORAGE AREA:

- **SEALED SOURCE 1: an old sealed source located in the storage area continuously (24 hr/d)**
- **SEALED SOURCE 2: a new sealed source located in the storage area continuously (24 hr/d) for 8 months of the year; for the remaining 4 months of the year**
- **SEALED SOURCE 3: a new sealed source located in the storage area overnight; it is used every day all year and returned to the storage location at the end of each day. The sealed source is usually present during the secretary's first and last hours of work each day.**

INFORMATION FROM EXAMPLE 1, PART 2 ON WHEN THE SECRETARY IS SITTING AT THE DESK

- **5 hours per day**
- **3 days per week**
- **52 weeks per year**

Table 11. Calculation Method, Part 3---Annual Dose Received from Sealed Sources 1, 2, and 3

Step No.	Description	Sealed Source 1	Sealed Source 2	Sealed Source 3
12	Average number of hours per day sealed source is in storage while secretary is present	5	5	2
13	Average number of days per week sealed source is in storage while secretary is present	3	3	3
14	Average number of weeks per year sealed source is in storage while secretary is present	52	32	52
15	Multiply the results of Step 12 by the results of Step 13 by the results of Step 14 = TOTAL HOURS EACH SEALED SOURCE IS STORED PER YEAR WHILE SECRETARY IS PRESENT	$5 \times 3 \times 52 = 780$	$5 \times 3 \times 32 = 480$	$2 \times 3 \times 52 = 312$
16	Multiply the results of Step 15 by the results of Step 7 = ANNUAL DOSE RECEIVED FROM EACH SEALED SOURCE , in mrem in a year	$780 \times 0.031 = 24$	$480 \times 0.056 = 27$	$312 \times 0.08 = 25$
17	Sum the results of Step 16 for each sealed source = TOTAL ANNUAL DOSE RECEIVED CONSIDERING REALISTIC ESTIMATE OF TIME SPENT IN AREA OF CONCERN AND TIME SEALED SOURCE IS IN STORAGE , in mrem in a year	$24 + 27 + 25 = 76$		

NOTE: If the result in Step 17 is greater than 100 mrem/yr, the licensee must take corrective actions.

Joe is pleased that the result in Step 17 shows compliance with the 100 mrem/yr limit. Had the result in Step 17 been higher than 100 mrem/yr, then Joe could have done one or more of the following:

- Consider whether the assumptions used to determine occupancy and the time each sealed source is in storage are accurate, revise the assumptions as needed, and recalculate using the new assumptions;
- Calculate the effect of any shielding located between the sealed source storage area and the secretarial workstation--such calculation is beyond the scope of this Appendix;
- Take corrective action (e.g., move sealed source within storage area, move the storage area, move the secretarial workstation) and perform new calculations to demonstrate compliance; and
- Designate the area outside the storage area as a restricted area and the secretary as an occupationally exposed individual. This would require controlling access to the area for purposes of radiation protection and training the secretary as required by **12 VAC 5-481-2270**.

Note that in the example, Joe evaluated the unrestricted area outside only one wall of the sealed source storage area. Licensees also need to make similar evaluations for other unrestricted areas and to keep in mind the ALARA principle, taking reasonable steps to keep radiation dose received below regulatory requirements. In addition, licensees need to be alert to changes in situations (e.g., moving any of the sealed source closer to the secretarial workstation, adding a sealed source to the storage area, changing the secretary to a full-time worker, or changing the estimate of the portion of time spent at the desk) and to perform additional evaluations, as needed.

RECORD KEEPING: 12 VAC 5-481-1050 requires licensees to maintain records demonstrating compliance with the dose limits for individual members of the public.

Combination Measurement-Calculation Method

This method, which allows the licensee to take credit for shielding between the sealed source and the area in question, begins by measuring radiation levels in the areas, as opposed to using manufacturer-supplied rates at a specified distance from each sealed source. These measurements must be made with calibrated survey meters sufficiently sensitive to measure background levels of radiation. However, licensees must exercise caution when making measurements with currently calibrated radiation survey instruments. A maximum dose of 1 mSv (100 mrem) received by an individual over a period of 2080 hours (i.e., a "work" year of 40 hr/wk for 52 wk/yr) is equal to less than 0.5 microsievert (0.05 mrem) per hour.

This rate is well below the minimum sensitivity of most commonly available G-M survey instruments.

Instruments used to make measurements for calculations must be sufficiently sensitive. An instrument equipped with a scintillation-type detector (e.g., NaI(Tl)) or a micro-R meter used in making very low gamma radiation measurements should be adequate.

Licensees may also choose to use environmental TLDs in unrestricted areas next to the sealed source storage area for monitoring. This direct measurement method would provide a definitive measurement of actual radiation levels in unrestricted areas without any restrictive assumptions. Records of these measurements can then be evaluated to ensure that rates in unrestricted areas do not exceed the 1 mSv/yr (100 mrem/yr) limit.

Note: TLDs used for personnel monitoring (e.g., LiF) may not have sufficient sensitivity for this purpose. Generally, the minimum reportable dose received is 0.1 mSv (10 mrem). Suppose a TLD monitors dose received and is changed once a month. If the measurements are at the minimum reportable level, the annual dose received could have been about 1.2 mSv (120 mrem), a value in excess of the 1 mSv/yr (100 mrem/yr) limit. If licensees use TLDs to evaluate compliance with the public dose limits, they should consult with their TLD supplier and choose more sensitive TLDs, such as those containing CaF₂ that are used for environmental monitoring.

Example 2

As in Example 1, Joe is the RSO of a sealed source licensee. The company has three sealed sources stored in a designated, locked storage area that adjoins an unrestricted area where a secretarial workstation is located. See **Figure 3** and **Table 3** for information. Joe wants to see if the company complies with the public dose limits at the secretarial station.

During the winter while all the gauges are in storage, Joe placed an environmental TLD badge in the secretarial workspace for 30 days. Joe chose a winter month so he did not have to keep track of the number of hours that each sealed source was in the storage area. The TLD processor sent Joe a report indicating the TLD received 100 mrem.

Table 12. Combination Measurement-Calculation Method

Step No.	Description	Input Data and Results
PART 1		
1	Dose received by TLD, in mrem	100
2	Total hours TLD exposed	24 hr/d x 30 d/mo = 720
3	Divide the results of Step 1 by the results of Step 2 to determine HOURLY DOSE RECEIVED , in mrem in an hour	0.14
4	Multiply the results of Step 3 by 365 d/yr x 24 hr/d = 8760 hours in one year = MAXIMUM ANNUAL DOSE RECEIVED FROM SEALED SOURCES , in mrem in a year	365 x 24 x 0.14 = 8760 x 0.14 = 1226

NOTE: For the conditions described above, Step 3 indicates that the dose received in any one hour is less than the 2 mrem in any one hour limit. However, if there are any changes, then the licensee would need to reevaluate the potential doses which could be received in any one hour. Step 4 indicates that the annual dose received would be much greater than the 100 mrem in a year allowed by the rule.

PART 2

At this point Joe can adjust for a realistic estimate of the time the secretary spends in the area as he did in Part 2 of Example 1.

PART 3

If the results of Joe's evaluation in Part 2 show that the annual dose received in a year exceeds 100 mrem, then he can make adjustments for realistic estimates of the time spent in the area of concern while the sealed sources are actually in storage as in Part 3 of Example 1. (Recall that the TLD measurement was made while all the sealed sources are in storage--i.e. 24 hr/d for the 30 days that the TLD was in place.)

Appendix J:
Leak Test Program

Leak Test Program

Training

Before allowing an individual to perform leak testing, the RSO will ensure that he or she has sufficient classroom and on-the-job training to show competency in performing leak tests independently.

Classroom training may be in the form of lecture, videotape, or self-study, and will cover the following subject areas:

- Principles and practices of radiation protection;
- Radioactivity measurements, monitoring techniques, and the use of instruments;
- Mathematics and calculations basic to the use and measurement of radioactivity; and
- Biological effects of radiation.

Appropriate on-the-job-training consists of:

- Observing authorized personnel collecting and analyzing leak test samples;
- Collecting and analyzing leak test samples under the supervision and in the physical presence of an individual authorized to perform leak tests.

Facilities and Equipment

- To ensure achieving the required sensitivity of measurements, leak tests will be analyzed in a low-background area.
- Before leak test swipes are analyzed, individuals conducting leak tests will use a calibrated and operable survey instrument to check leak test samples for gross contamination. If the sensitivity of the counting system is unknown, the minimum detectable activity (MDA) needs to be determined. The MDA may be determined using the following formula:

$$MDA = \frac{3 + 4.65(BR)*t^{1/2}}{E}$$

Et

where MDA = activity level in disintegrations per minute (dpm)

BR = background rate in counts per minute (cpm)

t = counting time in minutes

E = detector efficiency in counts per disintegration (cpd)

For example:

$$MDA = \frac{3 + 4.65(200 \text{ cpm})*t^{1/2}}{(0.1 \text{ cpd})(2 \text{ minutes})}$$

where BR = 200 cpm

E = 0.1 cpd (10% efficient)

t = 2 minutes

- An NaI(Tl) well counter system with a single or multichannel analyzer will be used to count samples from gauges containing gamma-emitters (e.g., Cs-137, Co-60).
- A liquid scintillation or gas-flow proportional counting system will be used to count samples from gauges containing beta-emitters (e.g., Sr-90) or alpha emitters (e.g., Am-241).

Frequency for Conducting Leak Tests of Sealed Sources

- Leak tests will be conducted at the frequency specified in the respective SSD Registration Certificate.

Procedure for Performing Leak Testing and Analysis

- For each source to be tested, list identifying information such as serial number, radionuclide, activity.
- If available, use a survey meter to monitor exposure.
- Prepare a separate wipe sample (e.g., cotton swab or filter paper) for each source.
- Number each wipe to correlate with identifying information for each source.
- Wipe the most accessible area where contamination would accumulate if the sealed source was leaking (e.g., the leak test can be taken on the part that connects to the source or the inside of the transport container that has recently transported the source).
- Select an instrument that is sensitive enough to detect 185 Bq (0.005 microcurie) of the radionuclide contained in the gauge.
- Using the selected instrument, count and record background count rate.
- Check the instrument's counting efficiency using standard source of the same radionuclide as the source being tested or one with similar energy characteristics. Accuracy of standards should be within +/-5 percent of the stated value and traceable to a primary radiation standard such as those maintained by the National Institutes of Standards and Technology (NIST).
- Calculate efficiency.

For example:
$$\frac{[(\text{cpm from std}) - (\text{cpm from bkg})]}{\text{activity of std in Bq}} = \text{efficiency in cpm/Bq}$$

where: cpm = counts per minute
 std = standard
 bkg = background
 Bq = Becquerel

- Count each wipe sample; determine net count rate.
- For each sample, calculate and record estimated activity in Bq (or microcuries).

For example:
$$\frac{[(\text{cpm from wipe sample}) - (\text{cpm from bkg})]}{\text{efficiency in cpm/Bq}} = \text{Bq on wipe sample}$$

- Sign and date the list of sources, data, and calculations. Retain records for 3 years.
- If the wipe test activity is 185 Bq (0.005 microcurie) or greater, notify the RSO so that the source can be withdrawn from use and disposed of properly. Also notify VDH.

Appendix K:

Major DOT Regulations; Sample Bill of Lading

The major areas in the DOT regulations that are most relevant for transportation of typical sealed sources that are shipped as Type A quantities are as follows:

- Table of Hazardous Materials and Special Provisions **49 CFR 172.101**, and App. A, Table 2: Hazardous materials table, list of hazardous substances and reportable quantities
- Shipping Papers **49 CFR 172.200-204**: general entries, description, additional description requirements, shipper's certification
- Package Markings **49 CFR 172.300, 49 CFR 172.301, 49 CFR 172.303, 49 CFR 172.304, 49 CFR 172.310, 49 CFR 172.324**: General marking requirements for non-bulk packages, prohibited marking, marking requirements, radioactive material, hazardous substances in non-bulk packaging
- Package Labeling **49 CFR 172.400, 49 CFR 172.401, 49 CFR 172.403, 49 CFR 172.406, 49 CFR 172.407, 49 CFR 172.436, 49 CFR 172.438, 49 CFR 172.440**: General labeling requirements, prohibited labeling, radioactive materials, placement of labels, specifications for radioactive labels
- Placarding of Vehicles **49 CFR 172.500, 49 CFR 172.502, 49 CFR 172.504, 49 CFR 172.506, 49 CFR 172.516, 49 CFR 172.519, 49 CFR 172.556**: Applicability, prohibited and permissive placarding, general placarding requirements, providing and affixing placards: highway, visibility and display of placards, RADIOACTIVE placard
- Emergency Response Information, Subpart G, **49 CFR 172.600, 49 CFR 172.602, 49 CFR 172.604**: Applicability and general requirements, emergency response information, emergency response telephone number
- Training, Subpart H, **49 CFR 172.702, 49 CFR 172.704**: Applicability and responsibility for training and testing, training requirements
- Radiation Protection Program for Shippers and Carriers, Subpart I, **49 CFR 172.800**, etc.
- Shippers - General Requirements for Shipments and Packaging, Subpart I, **49 CFR 173.403, 49 CFR 173.410, 49 CFR 173.412, 49 CFR 173.415, 49 CFR 173.433, 49 CFR 173.435, 49 CFR 173.441, 49 CFR 173.475, 49 CFR 173.476**: Definitions, general design requirements, additional design requirements for Type A packages, authorized Type A packages, requirement for determining A_1 and A_2 , table of A_1 and A_2 values for radionuclides, radiation level limit, quality control requirements prior to each shipment, approval of special form radioactive materials
- Carriage by Public Highway **49 CFR 177.816, 49 CFR 177.817, 49 CFR 177.834(a), 49 CFR 177.842**: Driver training, shipping paper, general requirements (secured against movement), Class 7 (radioactive) material

Minimum Required Packaging For Class 7 (Radioactive) Materials				
This table must not be used as a substitute for the DOT and NRC regulations on the transportation of radioactive materials				
Quantity:	< 70 Bq/g. (< 0.002 µCi/g)	Limited Quantity (\$173.421)	A ₁ /A ₂ value (\$173.435)	1 rem/hr at 3 m, un-shielded (\$173.427)
Non-LSA/SCO:	Excepted	Type A	Type B ³	
Domestic or International LSA/SCO: • LSA-I solid, (liquid) ¹ • SCO-I	Excepted	IP-I	Type B ³	
• LSA-I Liquid • LSA-II Solid, (liquid or gas) ¹ • (LSA-III) ¹ • SCO-II		IP-II	Type B ³	
• LSA-II Liquid or Gas • LSA-III		IP-III	Type B ³	
Domestic (only) LSA/SCO: • LSA-I, II, III; SCO-I, II	Excepted	Strong-tight ²	DOT Spec. 7A Type A	Type B ³ NRC Type A LSA ^{3,4}

1. For entries in parentheses, exclusive use is required for shipment in an IP (e.g., shipment of LSA-I liquid in an IP-I packaging would require exclusive-use consignment)
2. Exclusive use required for strong-tight container shipments made pursuant to §173.427(b)(2)
3. Subject to conditions in Certificate, if NRC package
4. Exclusive use required, see §173.427(b)(4). Use of these packages expires on 4/1/99 (10 CFR 71.52)

Package and Vehicle Radiation Level Limits (49 CFR 173.441) ^A				
This table must not be used as a substitute for the DOT and NRC regulations on the transportation of radioactive materials				
Transport Vehicle Use:	Non-Exclusive	Exclusive		
Transport Vehicle Type:	Open or Closed	Open (flat-bed)	Open w/Enclosure ^B	Closed
Package (or freight container) Limits:				
External Surface	2 mSv/hr (200 mrem/hr)	2 mSv/hr (200 mrem/hr)	10 mSv/hr (1000 mrem/hr)	10 mSv/hr (1000 mrem/hr)
Transport Index (TI) ^C	10	no limit		
Roadway or Railway Vehicle (or freight container) Limits:				
Any point on the outer surface	N/A	N/A	N/A	2 mSv/hr (200 mrem/hr)
Vertical planes projected from outer edges		2 mSv/hr (200 mrem/hr)	2 mSv/hr (200 mrem/hr)	N/A
Top of . . .		load: (200 mrem/hr)	enclosure: 2 mSv/hr (200 mrem/hr)	vehicle: 2 mSv/hr (200 mrem/hr)
2 meters from. . .		vertical planes: 0.1 mSv/hr (10 mrem/hr)	vertical planes: 0.1 mSv/hr (10 mrem/hr)	outer lateral surfaces: 0.1 mSv/hr (10 mrem/hr)
Underside	2 mSv/hr (200 mrem/hr)			
Occupied position	N/A ^D	0.02 mSv/hr (2 mrem/hr) ^E		
Sum of package TI's	50	no limit ^F		

- The limits in this table do not apply to excepted packages - see 49 CFR 173.421-426.
- Securely attached (to vehicle), access-limiting enclosure; package personnel barriers are considered as enclosures.
- For nonfissile radioactive materials packages, the dimensionless number equivalent to maximum radiation level at 1 m (3.3 feet) from the exterior package surface, in millirem/hour.
- No dose limit is specified, but separation distances apply to Radioactive Yellow-II or Radioactive Yellow-III labeled packages.
- This does not apply to private carrier wearing dosimetry if under radiation protection program satisfying 10 CFR 20 or 49 CFR 172 Subpart I.
- Some fissile shipments may have combined conveyance TI limit of 100 - see 10 CFR 71.59 and 49 CFR 173.457.

Hazard Communications for Class 7 (Radioactive) Materials

DOT Shipping Papers (49 CFR 172.200-205)

NOTE: IAEA, ICAO, and IMO may require additional hazard communication information for international shipments
This table must not be used as a substitute for the DOT and NRC regulations on the transportation of radioactive materials

Entries Always Required Unless Excepted	Additional Entries Sometimes Required	Optional Entries
<ul style="list-style-type: none"> • The basic description. In sequence: Proper Shipping Name. Hazard Class (7). U.N. Identification Number • 24 hour emergency response telephone number • Name of shipper • Proper page numbering (Page 1 of 4) • Except for empty and bulk packages, the total quantity (mass, or volume for liquid), in appropriate units (lbs, mL.....) • If not special form, chemical and physical form • The name of each radionuclide (95 percent rule) and total package activity. The activity must be in SI units (e.g., Bq, TBq), or both SI units and customary units (e.g., Ci, mCi). However, for domestic shipments, the activity may be expressed in terms of customary units only, until 4/1/97. • For each labeled package: <ul style="list-style-type: none"> - The category of label used; - The transport index of each package with a Yellow-II or Yellow-III label - Shipper's certification (not required of private carriers) 	<p>Materials-Based Requirements</p> <ul style="list-style-type: none"> • If hazardous substance, "RQ" as part of the basic description • The LSA or SCO group (e.g., LSA-II) • "Highway Route Controlled Quantity" as part of the basic description, if HRCQ • Fissile material information (e.g., "Fissile Exempt," controlled shipment statement [see §172.203(d)(7)]) • If the material is considered hazardous waste and the word waste does not appear in the shipping name, then "waste" must precede the shipping name (e.g., Waste Radioactive Material, nos, UN2982) • "Radioactive Material" if not in proper shipping name <p>Package-Based Requirements</p> <ul style="list-style-type: none"> • Package identification for DOT Type B or NRC certified packages • IAEA CoC ID number for export shipments or shipments using foreign-made packaging (see §173.473) <p>Administrative-Based Requirements</p> <ul style="list-style-type: none"> • "Exclusive Use-Shipment" • Instructions for maintenance of exclusive use-shipment controls for LSA/SCO strong-tight or NRC certified LSA (§ 173.427) • If a DOT exemption is being used, "DOT-E" followed by the exemption number 	<ul style="list-style-type: none"> • The type of packaging (e.g., Type A, Type B, IP-1,) • The technical/chemical name may be included (if listed in §172.203(k), in parentheses between the proper shipping name and hazard class; otherwise inserted in parenthesis after the basic description) • Other information is permitted (e.g., functional description of the product), provided it does not confuse or detract from the proper shipping name or other required information • For fissile radionuclides, except Pu-238, Pu-239, and Pu-241, the weight in grams or kilograms may be used in place of activity units. For Pu-238, Pu-239, and Pu-241, the weight in grams or kilograms may optionally be entered in addition to activity units [see §172.203(d)(4)] • Emergency response hazards and guidance information (§§ 172.600-604) may be entered on the shipping papers, or may be carried with the shipping papers [§172.602(b)]

Some Special Considerations/Exceptions for Shipping Paper Requirements

<ul style="list-style-type: none"> • Shipments of Radioactive Material, excepted packages, under UN2910 (e.g., Limited Quantity, Empty packages, and Radioactive Instrument and Article), are excepted from shipping papers. For limited quantities (§173.421), this is only true if the limited quantity is not a hazardous substance (RQ) or hazardous waste (40 CFR 262). • Shipping papers must be in the pocket on the left door, or readily visible to a person entering the driver's compartment and within arm's reach of the driver. • For shipments of multiple cargo types, any HAZMAT entries must appear as the first entries on the shipping papers, be designated by an "X" (or "RQ") in the hazardous material column, or be highlighted in a contrasting color.

Hazard Communications for Class 7 (Radioactive) Materials

Marking Packages (49 CFR 172.300-338)

NOTE: IAEA, ICAO, and IMO may require additional hazard communication information for international shipments
This table must not be used as a substitute for the DOT and NRC regulations on the transportation of radioactive materials

Markings Always Required Unless Excepted	Additional Markings Sometimes Required	Optional Markings
<p>Non-Bulk Packages</p> <ul style="list-style-type: none"> • Proper shipping name • U.N. identification number • Name and address of consignor or consignee, <i>unless</i>: <ol style="list-style-type: none"> 1. highway only and no motor carrier transfers; or part of carload or truckload lot or freight container load, and entire contents of railcar, truck, or freight container are shipped from one consignor to one consignee [see §172.301(d)] <hr style="border-top: 1px dashed black;"/> <p>Bulk Packages (i.e., net capacity greater than 119 gallons as a receptacle for liquid, or 119 gallons and 882 pounds as a receptacle for solid, or water capacity greater than 1000 lbs, with no consideration of intermediate forms of containment)</p> <ul style="list-style-type: none"> • U.N. identification number, on orange, rectangular panel (see §172.332) - some exceptions exist 	<p>Materials-Based Requirements</p> <ul style="list-style-type: none"> • If in excess of 110 lbs (50 kg), Gross Weight • If non-bulk <i>liquid</i> package, underlined double arrows indicating upright orientation (two opposite sides) [ISO Std 780-1985 marking] <div style="text-align: center; margin: 5px 0;">  </div> • If a Hazardous substance in non-bulk package, the letters "RQ" in association with the proper shipping name <p>Package-Based Requirements</p> <ul style="list-style-type: none"> • The package type if Type A or Type B (½' or greater letters) • The specification-required markings [e.g., for Spec. 7A packages: "DOT 7A Type A" and "Radioactive Material" (see §178.350-353)] • For approved packages, the certificate ID number (e.g., USA/9166/B(U), USA/9150/B(U)-85, ...) • If Type B, the trefoil (radiation) symbol per Part 172 App. B [size: outer radius ≥ 20 mm (0.8 in.)] • For NRC certified packages, the model number, gross weight, and package ID number (10 CFR 71.85) <p>Administrative-Based Requirements</p> <ul style="list-style-type: none"> • If a DOT exemption is being used, "DOT-E" followed by the exemption number • If an export shipment, "USA" in conjunction with the specification markings or certificate markings 	<ul style="list-style-type: none"> • "IP-1," "IP-2," or "IP-3" on industrial packaging is recommended • Both the name and address of consignor and consignee are recommended • Other markings (e.g., advertising) are permitted, but must be sufficiently away from required markings and labeling

Some Special Considerations/Exceptions for Marking Requirements

- Marking is required to be: (1) durable, (2) printed on a package, label, tag, or sign, (3) unobscured by labels or attachments, (4) isolated from other marks, and (5) be representative of the hazmat contents of the package.
- Limited Quantity (§173.421) packages and Articles Containing Natural Uranium and Thorium (§173.426) must bear the marking "radioactive" on the outside of the inner package or the outer package itself, and are excepted from other marking. The excepted packages shipped under UN 2910 must also have the accompanying statement that is required by §173.422.
- Empty (§173.428) and Radioactive Instrument and Article (§173.424) packages are excepted from marking.
- Shipment of LSA or SCO required by §173.427 to be consigned as exclusive use are excepted from marking except that the exterior of each nonbulk package must be marked "Radioactive-LSA" or "Radioactive-SCO," as appropriate. Examples of this category are domestic, strong-tight containers with less than an A₂ quantity, and domestic NRC certified LSA/SCO packages using 10 CFR 71.52.
- For bulk packages, marking may be required on more than one side of the package (see 49 CFR 172.302(a)).

Hazard Communications for Class 7 (Radioactive) Materials

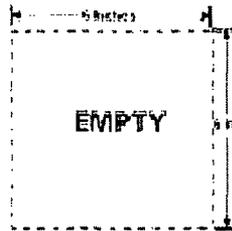
Labeling Packages (49 CFR 172.400-450)

NOTE: IAEA, ICAO, and IMO may require additional hazard communication information for international shipments. This table must not be used as a substitute for the DOT and NRC regulations on the transportation of radioactive materials.

Placement of Radioactive Labels

- Labeling is required to be: (1) placed near the required marking of the proper shipping name, (2) printed or affixed to the package surface (not the bottom), (3) in contrast with its background, (4) unobscured by markings or attachments, (5) within color, design, and size tolerance, and (6) representative of the HAZMAT contents of the package.
- For labeling of radioactive materials packages, two labels are required on opposite sides excluding the bottom.

Determination of Required Label

Size: Sides: ≥ 100 mm (3.9 in.) Border: 5-6.3 mm (0.2-0.25 in.)	 <p style="text-align: center; font-size: small;">49 CFR 172.436</p>	 <p style="text-align: center; font-size: small;">49 CFR 172.438</p>	 <p style="text-align: center; font-size: small;">49 CFR 172.440</p>	 <p style="text-align: center; font-size: small;">49 CFR 172.450</p>
Label	WHITE-I	YELLOW-II	YELLOW-III	EMPTY LABEL
Required when:	Surface radiation level < 0.005 mSv/hr (0.5 mrem/hr)	0.005 mSv/hr (0.5 mrem/hr) < surface radiation level \leq 0.5 mSv/hr (50 mrem/hr)	0.5 mSv/hr (50 mrem/hr) < surface radiation level \leq 2 mSv/hr (200 mrem/hr) [Note: 10 mSv/hr (1000 mrem/hr) for exclusive-use closed vehicle (§173.441(b))]	The EMPTY label is required for shipments of empty Class 7 (radioactive) packages made pursuant to §173.428. It must cover any previous labels, or they must be removed or obliterated.
Or:	TI = 0 [1 meter dose rate < 0.0005 mSv/hr (0.05 mrem/hr)]	TI \leq 1 [1 meter dose rate < 0.01 mSv/hr (1 mrem/hr)]	TI \leq 10 [1 meter dose rate < 0.1 mSv/hr (10 mrem/hr)] [Note: There is no package TI limit for exclusive-use]	
Notes:	<ul style="list-style-type: none"> Any package containing a Highway Route Controlled Quantity (HRCQ) must bear YELLOW-III label Although radiation level transport indices (TIs) are shown above, for fissile material, the TI is typically determined on the basis of criticality control 			

Content on Radioactive Labels

2. RADIOACTIVE Label must contain (entered using a durable, weather-resistant means):
- The radionuclides in the package (with consideration of available space). Symbols (e.g., Co-60) are acceptable.
 - The activity in SI units (e.g., Bq, TBq), or both SI units with customary units (e.g., Ci, mCi) in parenthesis. However, for domestic shipments, the activity may be expressed in terms of customary units only, until 4/1/97.
 - The Transport Index (TI) in the supplied box. The TI is entered *only* on YELLOW-II and YELLOW-III labels.

Some Special Considerations/Exceptions for Labeling Requirements

- For materials meeting the definition of another hazard class, labels for each secondary hazard class need to be affixed to the package. The subsidiary label may not be required on opposite sides, and must not display the hazard class number.
- Radioactive Material, excepted packages, under UN2910 (e.g., Limited Quantity, Empty packages, and Radioactive Instrument and Article), are excepted from labeling. However, if the excepted quantity meets the definition for another hazard class, it is re-classed for that hazard. Hazard communication requirements for the other class are required.
- Labeling exceptions exist for shipment of LSA or SCO required by § 173.427 to be consigned as exclusive use.
- The "Cargo Aircraft Only" label is typically required for radioactive materials packages shipped by air [§ 172.402(c)].

Hazard Communications for Class 7 (Radioactive) Materials

Placarding Vehicles (49 CFR 172.500-560)

NOTE: IAEA, ICAO, and IMO may require additional hazard communication information for international shipments. This table must not be used as a substitute for the DOT and NRC regulations on the transportation of radioactive materials.

Visibility and Display of Radioactive Placard

- Placards are required to be displayed:
 - On four sides of the vehicle;
 - Visible from the direction they face, (for the front side of trucks, tractor-front, trailer, or both are authorized);
 - Clear of appurtenances and devices (e.g., ladders, pipes, tarpaulins);
 - At least 3 inches from any markings (such as advertisements) which may reduce placard's effectiveness;
 - Upright and on-point such that the words read horizontally;
 - In contrast with the background, or have a lined-border which contrasts with the background;
 - Such that dirt or water from the transport vehicle's wheels will not strike them;
 - Securely attached or affixed to the vehicle, or in a holder.
- Placard must be maintained by carrier to keep color, legibility, and visibility.

Conditions Requiring Placarding

- Placards are required for any vehicle containing a package with a RADIOACTIVE Yellow-III label.
- Placards are required for shipment of LSA or SCO required by §173.427 to be consigned as exclusive use. Examples of this category are domestic, strong-tight containers with less than an A₂ quantity, and domestic NRC certified LSA/SCO packages using 10 CFR 71.52. Also, for bulk packages of these materials, the orange panel marking with the UN Identification number is not required.
- Placards are required for any vehicle containing a package with a Highway Route Controlled Quantity (HRCQ). In this case, the placard must be placed in a square background as shown below (see §173.507(a)).

Radioactive Placard

<p>Size Specs:</p> <p>Sides: ≥ 273 mm (10.8 in.)</p> <p>Solid line Inner border: About 12.7 mm (0.5 in.) from edges</p> <p>Lettering: ≥ 41 mm (1.6 in.)</p> <p>Square for HRCQ: 387mm (15.25 in.) outside length by 25.4 mm (1 in.) thick</p>			
	49 CFR 172.556	IAEA SS 6 (1985) paras. 443-444	See 49 CFR 172.527 AND 556
	<p>RADIOACTIVE PLACARD (Domestic)</p> <p>Base of yellow solid area: 29 ± 5 mm (1.1 ± 0.2 in.) above horizontal centerline</p>	<p>RADIOACTIVE PLACARD (International)</p>	<p>RADIOACTIVE PLACARD FOR HIGHWAY ROUTE CONTROLLED QUANTITY (either domestic or international placard could be in middle)</p>

Some Special Considerations/Exceptions for Placarding Requirements

- Domestically, substitution of the UN ID number for the word "RADIOACTIVE" on the placard is prohibited for Class 7 materials. However, some import shipments may have this substitution in accordance with international regulations.
- Bulk packages require the orange, rectangular panel marking containing the UN ID number, which must be placed adjacent to the placard (see §172.332) [NOTE: except for LSA/SCO exclusive use under §173.427, as above].
- If placarding for more than one hazard class, subsidiary placards must not display the hazard class number. Uranium Hexafluoride (UF₆) shipments ≥ 454 kg (1001 lbs) require both RADIOACTIVE and CORROSIVE (Class 8) placarding.
- For shipments of radiography cameras in convenience overpacks, if the overpack does not require a RADIOACTIVE - YELLOW III label, vehicle placarding is not required (regardless of the label which must be placed on the camera).

Package and Vehicle Contamination Limits (49 CFR 173.443)

This table must not be used as a substitute for the DOT and NRC regulations on the transportation of radioactive materials

NOTE: All values for contamination in DOT rules are to be averaged over each 300 cm²
Sufficient measurements must be taken in the appropriate locations to yield representative assessments

$\beta\gamma$ means the sum of beta emitters, gamma emitters, and low-toxicity alpha emitters
* means the sum of all other alpha emitters (i.e., other than low-toxicity alpha emitters)

*The Basic Contamination Limits
for All Packages:
49 CFR 173.443(a), Table 11*

General Requirement: Non-fixed (removable) contamination must be kept as low as reasonably achievable (ALARA)

$\beta\gamma$: 0.4 Bq/cm² = 40 Bq/100 cm² = 1x10⁻⁶ μ Ci/cm² = 2200 dpm/100 cm²

α : 0.04 Bq/cm² = 4 Bq/100 cm² = 1x10⁻⁶ μ Ci/cm² = 220 dpm/100 cm²

The following exceptions and deviations from the above basic limits exist:

Deviation from Basic Limits	Regulation 49 CFR §§	Applicable Location and Conditions Which must Be Met:
10 times the basic limits	173.443(b) and 173.443(c) Also see 177.843 (highway)	On any external surface of a package in an exclusive use shipment, during transport including end of transport. Conditions include: <ul style="list-style-type: none"> • Contamination levels at beginning of transport must be below the basic limits. • Vehicle must not be returned to service until radiation level is shown to be \leq 0.005 mSv/hr (0.5 mrem/hr) at any accessible surface, and there is no significant removable (non-fixed) contamination.
10 times the basic limits	173.443(d) Also see 177.843 (highway)	On any external surface of a package, at the beginning or end of transport, if a closed transport vehicle is used, solely for transporting radioactive materials packages. Conditions include: <ul style="list-style-type: none"> • A survey of the interior surfaces of the empty vehicle must show that the radiation level at any point does not exceed 0.1 mSv/hr (10 mrem/hr) at the surface, or 0.02 mSv/hr (2 mrem/hr) at 1 meter (3.3 ft). • Exterior of vehicle must be conspicuously stenciled, "For Radioactive Materials Use Only" in letters at least 76 mm (3 inches) high, on both sides. • Vehicle must be kept closed except when loading and unloading.
100 times the basic limits	173.428	Internal contamination limit for excepted package-empty packaging, Class 7 (Radioactive) Material, shipped in accordance with 49 CFR 173.428. Conditions include: <ol style="list-style-type: none"> (1) The basic contamination limits (above) apply to external surfaces of package. (2) Radiation level must be \leq 0.005 mSv/hr (0.5 mrem/hr) at any external surface. (3) Notice in §173.422(a)(4) must accompany shipment. (4) Package is in unimpaired condition & securely closed to prevent leakage. (5) Labels are removed, obliterated, or covered, and the "empty" label (§172.450) is affixed to the package.

In addition, after any incident involving spillage, breakage, or suspected contamination, the modal-specific DOT regulations (§177.861(a), highway; §174.750(a), railway; and §175.700(b), air) specify that vehicles, buildings, areas, or equipment have "no significant removable surface contamination" before being returned to service or routinely occupied. The carrier must also notify offeror at the earliest practicable moment after incident.

Sample Bill of Lading

STRAIGHT BILL OF LADING
ORIGINAL - NOT NEGOTIABLE

Appendix K

Shipper No. _____

Carrier No. _____

Page 1 of 1

(Name of carrier)

(SCAC)

Date _____

TO: Builders, Inc. ** Consignee On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or be otherwise provided in Item 430, Sec. 1. Street <u>5678 Jefferson Davis Highway **</u> Destination <u>Arlington, VA**</u> Zip Code <u>22222**</u>	FROM: Moisture Density Measurements, Inc. ** Shipper Street <u>1234 A Street, NW **</u> Origin <u>Washington, DC 20000**</u>
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No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), net WT or 200 L	TOTAL QUANTITY (weight, volume, gallons, etc.)	WEIGHT (subject to Correction)	RATE	CHARGES (If Carrier Use Only)
1	RQ	Radioactive material, special form n.o.s. 7 UN2974 0.41GBq (11 mCi) Cs-137 and 1.9GBq (50 mCi) Am-241;Be RADIOACTIVE - YELLOW II TI = 0.4 ** USDOT 7A TYPE A Emergency Response Telephone No.: 1-800-000-0000 (24 hr/d)** ** SUBSTITUTE APPROPRIATE INFORMATION FOR YOUR GAUGE AND YOUR SHIPMENT	2.31 GBq (61 mCi)			

PLACARDS TENDERED: YES <input type="checkbox"/> NO <input type="checkbox"/>	REMIT C.O.D. TO ADDRESS COD Amt: \$ _____ Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The consignor shall make delivery of the shipment without demand of freight and of other landed charges. Signature: <i>John James</i>	C.O.D. FEE: PREPAID <input type="checkbox"/> COLLECT <input type="checkbox"/> \$ _____ TOTAL CHARGES: \$ _____ FREIGHT CHARGES: PREPAID <input type="checkbox"/> Collect by check <input type="checkbox"/> \$ _____ PREPAID <input type="checkbox"/> Collect by cash <input type="checkbox"/> \$ _____
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RECEIVED: Subject to the specifications and liability limit therein on the date of purchase of this Bill of Lading, the property described above is received in good order, except as noted (quantity and condition of contents of packages unknown, marked, consigned, and delivered as indicated above which shall remain the sole responsibility of the consignor being understood throughout this contract as regarding any person or corporation in possession of the property while the contract applies to carry it to the usual place of delivery at base destination if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each parcel or lot of any of the property hereof or any portion of said parcel or lot to be delivered and as to each party at all times the consignor in all or any and property that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and that he and the conditions are hereby agreed to by the shipper and accepted by the carrier and the consignee.

SHIPPER PER _____	CARRIER PER _____ DATE _____
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Virginia Department of Health
 Radioactive Materials Program
 (804) 864-8150



CERTIFICATE OF DISPOSITION OF MATERIALS

Completion of this form is required to complete termination of a Radioactive Material License as outlined in 12 VAC 5-481-500. Failure to provide information will result in this request for termination of a specific license not being processed.

Instructions – Complete all items. Retain one copy and submit original to Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

CONTACT INFORMATION

Item 1 Name and Mailing Address of Applicant:	Item 2 Virginia Radioactive Material License Number
	Item 3 Contact Person – Name
	Contact Person - Telephone Number (Include area code) () - X

TERMINATION AND DISPOSITION INFORMATION

The following information is provided in accordance with 12 VAC 5-481-500. (Check all that apply)

- Item 4** All use of radioactive material authorized under the above referenced license has been terminated.
- Item 5** Radioactive contamination has been removed to the levels outlined in 12 VAC 5-481-1160 B.
- Item 6** All radioactive material previously procured and/or possessed under the authorization granted by the above referenced license has been disposed of as follows. (Check all that apply)
 - Transferred to: Name Address

Who is (are) authorized to possess such material under Licensed Number:

Issued by (Licensing Agency):

- Decayed, surveyed and disposed of as non-radioactive waste.
- No radioactive material has ever been procured and/or possessed by the licensee under the authorization granted by the above referenced license.
- Other (Attach additional pages)

- Item 7** Attached are radiation surveys or equivalent as specified in 12 VAC 5-481-500 L. Specify the survey instrument(s) used and certify that each instrument is properly calibrated as required in 12 VAC 5-481-500 K.

Item 8 Records required to be maintained for the license termination requested are available at the following location(s):

Name:

Address:

Contact Person Telephone Number: () - X

Additional remarks (Attach additional pages if necessary.)

CERTIFICATION (To be completed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 10.

The undersigned, on behalf of the licensee, hereby certifies that licensable quantities of radioactive material under the jurisdiction of the Virginia Department of Health are not possessed by the licensee. It is therefore requested that the above referenced radioactive material license be terminated.

SIGNATURE - Applicant or Authorized Individual

Date signed

Print Name and Title of above signatory



**APPLICATION FOR A RADIOACTIVE MATERIAL LICENSE
FOR ACADEMIC, RESEARCH AND DEVELOPMENT AND OTHER LICENSES OF
LIMITED SCOPE**

The Virginia Department of Health (VDH) is requesting disclosure of information for obtaining a radioactive material license. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions – Complete all items if this is an initial application or an application for renewal of a license. Refer to VAREG ‘Guidance for Academic, Research and Development and other Licenses of Limited Scope’. Use supplementary sheets where necessary. Retain one copy and submit original of the entire application to the Virginia Department of Health, 109 Governor Street, Room 730, Richmond, VA 23219.

APPLICATION TYPE

Item 1 Type Of Application (Check one box)

New License Renewal License Number _____

CONTACT INFORMATION

Item 2 Name And Mailing Address Of Applicant:

Item 3 Person To Contact Regarding Application:

Applicant's Telephone Number (Include area code):

Contact's Telephone Number (Include area code):

() - ext:

() - ext

LOCATION OF RADIOACTIVE MATERIAL

Item 4 Address(es) Where Radioactive Material Will Be Used Or Possessed (Do not use Post Office Box)

Address

Telephone Number (Include area code)

Address

Telephone Number (Include area code)

Address

Telephone Number (Include area code)

Is radioactive material used at locations for field studies or other off-site locations? Yes No

If yes, please attach an additional sheet(s) with the locations (addresses) and a list of activities to be conducted at each location.

RADIATION SAFETY OFFICER

Item 5. Radiation Safety Officer (RSO) (Check all that apply)

The name of the proposed RSO who will be responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures.

Telephone (Include Area Code): () - x

AND

We will provide information demonstrating that the proposed RSO is qualified by training and experience.

AUTHORIZED USERS AND TRAINING

Item 6 Authorized Users (Check both boxes)

We will attach a list of each proposed authorized user with the types and quantities of licensed material to be used.

AND

Information is attached demonstrating that each proposed authorized user is qualified by training and experience to use the requested licensed material.

Item 7 Training For Individuals Working In Or Frequenting Restricted Areas
(Occupationally exposed individuals and ancillary personnel) (Check box)

A description of the radiation safety training program, including topics covered, groups of workers, assessment of training, qualifications of instructors and the method and frequency of training is attached.

RADIOACTIVE MATERIAL

Item 8 Radioactive Material (Attach additional pages if necessary)

UNSEALED SOURCES				
Radioisotope				
Chemical/Physical Form				
Maximum Possession Limit				
Proposed Use				

SEALED SOURCES				
Radioisotope				
Chemical/Physical Form	SEALED SOURCE	SEALED SOURCE	SEALED SOURCE	SEALED SOURCE
Sealed Source Manufacturer or Distributor and Model Number				
Device Manufacturer or Distributor and Model Number				
Maximum Possession Limit				
Proposed Use				

FACILITIES AND EQUIPMENT

Item 9. FACILITIES AND EQUIPMENT (Check all that apply and attach the requested information.)

- A description is provided of the facilities and equipment at each location where radioactive material will be used. Diagrams should be drawn to a specified scale, or dimensions should be indicated. For facilities where it is anticipated that more than one laboratory or room may be used, a generic laboratory or room diagram may be submitted.

NOTE: See Appendix K of VAREG "Guidance for Academic, Research and Development and Other Licenses of limited Scope" for guidance.

AND, IF APPLICABLE

- A description showing the locations of shielding, the proximity of radiation sources to unrestricted areas, and other items related to radiation safety is provided.

AND/OR

- For radioactive materials that may become airborne, diagrams contain schematic descriptions of the ventilation systems, with pertinent airflow rates, pressures, filtration equipment, and monitoring systems. (Diagrams are attached)

RADIATION SAFETY PROGRAM

Item 10.1 Radiation Safety Audit Program

The applicant is not required to submit its audit program to the agency for review during the licensing phase. This matter will be examined during an inspection.

Item 10.2 Radiation Monitoring Instruments (Check one box)

- We will use instruments that meet the radiation monitoring instruments specifications published in Appendix M of VAREG "Guidance for Academic, Research and Development and Other Licenses of Limited Scope." We reserve the right to upgrade our survey instruments as necessary.

OR

- We will use instruments that meet the radiation monitoring instrument specifications published in Appendix M of VAREG "Guidance for Academic, Research and Development and Other License of Limited Scope." Additionally we will implement the model survey meter calibration program published in Appendix M of VAREG "Guidance for Academic Research and Development and Other License of Limited Scope." We reserve the right to upgrade our survey instruments as necessary.

OR

- We will provide a description of alternative equipment and/or procedures for ensuring that appropriate radiation monitoring equipment will be used during licensed activities and that proper calibration and calibration frequency of survey equipment will be performed. We reserve the right to upgrade our survey instruments as necessary.

Item 10.3 Material Receipt and Accountability (Check all that apply)

Unsealed Sources

- We will submit procedure(s) for ensuring radioactive material accountability.

Sealed Sources

- We will perform physical inventories at intervals not to exceed 6 month, to account for all sealed sources and devices received and possessed under the license.

OR

- We will submit a description of the frequency and procedures for ensuring that no gauge has been lost, stolen or misplaced.

Item 10.4 Occupational Dosimetry (Check one box)

- We will maintain, for inspection by VDH, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits in 12 VAC 5-481-640.

OR

- We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor. (12 VAC 5-481-750)

Item 10.5 Public Dose

No response is required in this license application, however the licensee's evaluation of public dose will be examined during an inspection.

Item 10.6 Safe Use of Radionuclides and Emergency Procedures (Check box)

- We will develop, implement and maintain safe use of radionuclides and emergency procedures that will meet the criteria in the section titled 'Safe Use of Radionuclides and Emergency Procedures' in VAREG 'Guidance for Academic, Research and Development and Other Licenses of Limited Scope'. (Procedures are attached)

Item 10.7 Surveys (Check all that apply)

- We will survey our facility and maintain contamination levels in accordance with the survey frequencies and contamination levels published in Appendix Q of VAREG 'Guidance for Academic, Research and Development and Other Licenses of Limited Scope'.

IF SEALED SOURCES ARE USED

- Leak tests will be performed by an organization authorized by VDH, the NRC or an Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or an Agreement State to provide leak test kits to other licensees according to kit supplier's instructions.

List the name and license number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or other Agreement State):

Organization Name _____ License Number _____

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, NRC or an Agreement State.

OR

- We will perform our own leak testing and sample analysis. We will follow the procedures published in Appendix R of VAREG 'Guidance for Academic, Research and Development and Other Licenses of Limited Scope'.

OR

- We will submit alternative procedures. (Procedures are attached)

Item 10.8 Transportation

No response is needed from applicant in this license application; transportation issues will be reviewed during inspections.

Item 10.9 Minimization of Contamination

No response is required if applicant meets the criteria in the following sections: 'Unsealed and/or Sealed Sources', 'Facilities and Equipment', 'Safe use of Radioisotopes and Emergency Procedures', 'Surveys', and 'Waste Management'.

Item 10.10 Termination Of Activities

No response is required from the applicant during the application process. Refer to section titled 'Termination of Activities' in VAREG 'Guidance for Academic Research and Development and Other License of Limited Scope'.

Item 11 Waste Management (Check all that apply)

We will follow the model waste procedures published in Appendix T of VAREG "Guidance for Academic Research and Development and Other Licenses of Limited Scope."

OR

We will follow: Decay-In-Storage or Disposal of Liquids Into Sanitary Sewerage waste procedures that are published in Appendix T of VAREG 'Guidance for Academic Research and Development and Other Licenses of Limited Scope'.

OR

We will develop, implement and maintain procedures for waste collection, storage and disposal by any of the authorized methods described in Item 11 'Waste Management' of VAREG 'Guidance for Academic Research and Development and Other Licenses of Limited Scope'. We will contact VDH for guidance to obtain approval of any method(s) of waste disposal other than those discussed in Item 11 'Waste Management' of VAREG 'Guidance for Academic Research and Development and Other Licenses of Limited Scope'. (Procedures are attached)

OR

If access to a radioactive waste burial site is unavailable, we will request authorization for extended interim storage of waste. We will refer to NRC IN 90-09 'Extended Interim Storage of Low-Level Radioactive Waste by Fuel Cycle and Materials Licenses', dated February 1990, for guidance and submit the required information with this applications.

IF SEALED SOURCES ARE USED

We will return sealed sources/devices to the manufacturer, distributor or an organization licensed by DHFS, the NRC or another Agreement State.

NOTE: Applicants do not need to provide information to VDH if they plan to dispose of LLW via transfer to another authorized recipient or to dispose of liquid scintillation media or animals containing low levels of H-3 or C-14 as authorized by 12 VAC 5-481-910.

SPECIFIC LICENSE FEE

Item 12 License Fees (Refer to 12 VAC 5-481-490.)

Category:	License fee enclosed: <input type="checkbox"/> Yes <input type="checkbox"/> No Amount Enclosed _____
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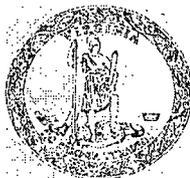
CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 13

I hereby certify that this application was prepared in conformance with 12 VAC 5-481 "Virginia Radiation Protection Regulations" and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant Or Authorized Individual	Date signed
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Print Name and Title of above signatory



APPLICATION FOR RADIOACTIVE MATERIAL LICENSE FOR BROAD SCOPE

The Virginia Department of Health(VDH) is requesting disclosure of information for obtaining a radioactive material license. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions – Complete all items if this is an initial application or an application for renewal of a license. Refer to VAREG “Guidance for Licenses of Broad Scope.” Use supplementary sheets where necessary. Retain one copy and submit original of the entire application to the Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

APPLICATION TYPE

Item 1 Type Of Application (Check one box)

New License Renewal License Number: _____

CONTACT INFORMATION

Item 2 Name And Mailing Address Of Applicant:

Item 3 Person To Contact Regarding Application:

Applicant's Telephone Number (Include Area Code):

() - x

Contact's Telephone Number (Include Area Code):

() - x

LOCATION OF RADIOACTIVE MATERIAL

Item 4 Address(es) Where Radioactive Material Will Be Used Or Possessed (Do not use Post Office Box):

Address

Telephone Number (Include area code)

() - x

Address

Telephone Number (Include area code)

() - x

Address

Telephone Number (Include area code)

() - x

Is radioactive material used at locations for field studies, other off-site locations or special use facilities? Yes No

If yes, please attach an additional sheet(s) with the location address(es) and a list of activities to be conducted at each location.

**APPLICATION FOR RADIOACTIVE MATERIAL LICENSE FOR BROAD SCOPE
INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM**

Item 5 Executive Management (Check box and provide the information requested)

- We will describe and provide administrative controls and provisions relating to organization, management and management review necessary to assure safe operations. We will also provide an organizational chart describing the management structure, reporting paths, and the flow of authority between executive management, the Radiation Safety Committee (for Type A Broad Scope), and the Radiation Safety Officer (for Type A and Type B Broad Scope).

Item 6 Radiation Safety Committee (RSC) (Check all that apply and provide the information requested)

- A description of the duties and responsibilities of the RSC is attached.
- AND
- A description of the criteria used for selecting members of the RSC, including members and the number of members constituting a quorum is attached.

NOTE: Members should be indicated by position title, rather than by name. The chairperson should be identified by name, with training and experience submitted.

AND

- A description of the criteria used by the RSC and RSO for approving users and new uses is attached

Item 7 Radiation Safety Officer (RSO) (Check all that apply)

- The name of the proposed RSO and other potential designees who will be responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures.

Name: _____ Telephone Number (Include area code): (____) _____ - _____ X _____

AND

- A delegation of authority letter is included which authorizes the RSO to submit license amendment requests.

AND

- We will provide information demonstrating that the proposed RSO is qualified by training and experience.

AND

- We will provide a statement delineating the RSO's duties and responsibilities, signed by the licensee's executive management.

FOR TYPE C BROAD SCOPE

- We will submit the name of the person who will serve as the individual responsible for the day-to-day operation of the radiation safety program.

TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

Item 8 Training For Individuals Working In Or Frequenting Restricted Areas (Occupationally exposed individuals and ancillary personnel) (Check box)

- A description of the radiation safety training program, including topics covered, groups of workers, assessment of training, qualifications of instructors and the method and frequency of training is attached.

RADIOACTIVE MATERIAL

Item 9 Radioactive Material (Attach additional pages if necessary)

Atomic Number 1-83 Request

- We request authorization for radionuclides with Atomic Number 1-83 in any form with a maximum quantity of _____ per radionuclide and _____ maximum possession limit.

Intended uses include: non-human research and development activities.
 animal studies.
 other (list general category of use) _____

Radionuclides in Larger or Smaller Quantities than Atomic Number 1-83 Request - Unsealed sources of radioactive material

Radioisotope				
Chemical/Physical Form				
Maximum Possession Limit				
Proposed use of Radioactive material				

Radionuclides in Larger Quantities than Atomic Number 1-83 Request - Sealed sources of radioactive material

Radioisotope				
Sealed Source Manufacturer or Distributor and Model Number				
Device Manufacturer or Distributor and Model Number				
Maximum Possession Limit				
Proposed Use of Radioactive Material				

Note: If applicable, an evaluation or an emergency response plan is included for radionuclide(s) in excess of the amounts listed in 12 VAC 5-481-3760.

FINANCIAL ASSURANCE AND RECORDKEEPING FOR DECOMMISSIONING

Item 10 Financial Assurance And Recordkeeping For Decommissioning (Check box)

We will provide a decommissioning funding plan or a certification of financial assurance as required in. 12 VAC 5-481-450 C. (Attached if required)

FACILITIES AND EQUIPMENT

Item 11 Facilities And Equipment (Check all that apply and attach the requested information)

A description of the criteria used by the RSC (Type A) or RSO (Type B), as appropriate, that will be used to review and approve facilities and equipment (research laboratories, iodination facilities, waste storage facilities, survey and counting equipment, etc.) is attached.

NOTE: See Appendices K and L of VAREG "Guidance for Licenses of Broad Scope" for guidance.

RADIATION SAFETY PROGRAM**Item 12.1 Audit Program** (Check all that apply)

- A description of the mechanisms used by executive management to ensure that adequate oversight of the Broad Scope Radiation Safety program is exercised, is attached.

AND

- A description of the audit mechanism implemented by the RSO to determine user compliance with 12 VAC 5-481 'Virginia Radiation Protection Regulations', the terms and conditions of the VDH license, the requirements of the RSC (Type A) or RSO-approved permits (Type B) as appropriate, and good health physics practices are attached.

NOTE: The applicant is not required to submit its audit program to the agency for review during the licensing phase. This matter will be examined during an inspection.

Item 12.2 Radiation Monitoring Instruments (Check all that apply)

- A description of the criteria used by the RSC (Type A) or RSO (Type B), as appropriate, to review and approve radiation monitoring instrumentation to assure that appropriate radiation monitoring equipment will be used during licensed activities is attached.

AND

- A description of how the RSC (Type A) or RSO (Type B), as appropriate, will assure that instruments are properly calibrated at prescribed frequencies is attached.

AND ONE OF THE FOLLOWING

- Instruments will be calibrated by an organization licensed by VDH, the NRC or an Agreement State to perform instrument calibrations.

OR

- We will follow the procedures for instrument calibrations in Appendix O of VAREG "Guidance for Licenses of Broad Scope."

OR

- A description of alternative procedures is provided for ensuring that proper calibration of survey equipment will be performed. (Procedures are attached)

Item 12.3 Material Receipt And Accountability (Check all boxes)

- A description of administrative procedures to assure control of procurement and use of radioactive material is attached.

AND

- A description of administrative controls and provisions relating to material control, accounting and security is attached.

AND

- We will develop, implement, and maintain procedures for safe opening of packages containing radioactive material.

Item 12.4 Occupational Dosimetry (Check one box)

- We will maintain, for inspection by the agency, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits in 12 VAC 5-481-640.

AND / OR

- We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor.

Item 12.5 Public Dose

No response is required, in this license application, however the licensee's evaluation of public dose will be examined during an inspection.

Item 12.6 Safe Use Of Radionuclides And Emergency Procedures (Check one box)

- We will develop, implement and maintain procedures for the safe use of radionuclides and emergencies that will meet the criteria in the section titled 'Safe Use of Radionuclides and Emergency Procedures' in VAREG "Guidance for Licenses of Broad Scope." (Procedures are attached)

OR

- We will follow procedures for the safe use of radionuclides and emergencies in Appendix R of VAREG "Guidance for Licenses of Broad Scope."

Item 12.7 Leak Tests (Check one box)

[] Leak tests will be performed by an organization authorized by VDH, the NRC or an other Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or an other Agreement State to provide leak test kits to other licensees according to kit supplier's instructions.

List name and license number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or an other Agreement State)

Organization Name: _____

License Number: _____

Note: An alternate organization may be used to perform or analyze other leak test, without amending the license, provided the organization is specifically authorized by VDH, NRC, or an Agreement State.

OR

[] We will perform leak testing and sample analysis and will follow the model procedures in Appendix T of VAREG "Guidance for Licenses of Broad Scope." (Procedures are attached)

OR

[] We will submit alternative procedures. (Procedures are attached)

Item 12.8 Surveys (Check one box)

[] We will develop, implement and maintain procedures for area surveys that will meet the criteria in the section titled 'Surveys' in VAREG "Guidance for Licenses of Broad Scope." (Procedures are attached)

OR

[] We will follow the procedures for area surveys in Appendix S of VAREG "Guidance for Licenses of Broad Scope."

Item 12.9 Termination Of Activities

No response is required from the applicant during the application process. Refer to section titled "Termination of Activities" in VAREG VAREG "Guidance for Licenses of Broad Scope" for further information.

Item 12.10 Transportation

No response is needed from applicant during the licensing process; this issue will be reviewed during inspection.

Item 13 Waste Management (Check box)

[] We will develop, implement and maintain procedures for waste collection, storage, and the disposal of radioactive material, that will meet the criteria in the section titled 'Waste Management' in VAREG "Guidance for Licenses of Broad Scope." (Procedures are attached)

Note: Appendix V in VAREG "Guidance for Licenses of Broad Scope" provides sample procedures for waste management.

SPECIFIC LICENSE FEE

Item 14 License Fees (Refer to the Commonwealth of 12 VAC 5-490)

Category:

License fee enclosed:

[] Yes [] No Amount Enclosed: _____

CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 15

I hereby certify that this application was prepared in conformance with the 12 VAC 5-481 'Virginia Radiation Protection Regulations' and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant Or Authorized Individual

Date signed

Print Name and Title of above signatory



Comment [d1]: Should it be complete address as licensees may be mailing this form separate from others forms??

**APPLICATION FOR RADIOACTIVE MATERIAL LICENSE
AUTHORIZING THE USE OF SEALED SOURCES IN FIXED GAUGE DEVICES**

Virginia Department of Health is requesting disclosure of information. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions – Complete all items if this is an initial application or an application for renewal of a license. Refer to VAREG “Guidance for Fixed Gauge Devices.” Use supplementary sheets where necessary. Retain one copy and submit original of the entire application to the Commonwealth of Virginia, Department of Health (VDH), 109 Governor Street, Post Office Box 2448, Richmond, VA 23218.

APPLICATION TYPE

Item 1. Type Of Application (Check one box)

New License Renewal License Number: _____ Amendment License Number: _____

CONTACT INFORMATION

Item 2. Name And Mailing Address Of Applicant:

Item 3. Person To Contact Regarding Application:

Applicant's Telephone Number (Include Area Code):

Contact's Telephone Number (Include Area Code):

LOCATION OF RADIOACTIVE MATERIAL

Item 4. Address(es) Where Radioactive Material Will Be Used Or Possessed (Do not use Post Office Box)

Address	Telephone Number (Include Area Code)
Address	Telephone Number (Include Area Code)
Address	Telephone Number (Include Area Code)

RADIATION SAFETY OFFICER

Item 5. Radiation Safety Officer (RSO) (Check one box and attach evidence of training and experience)

Name: _____ Telephone Number (Include area code): _____

Before obtaining radioactive material, the proposed RSO will have successfully completed one of the training courses described in Criteria in the section titled “Radiation Safety Officer” in VAREG ‘Guidance For Fixed Gauge Devices’. Before being named as the RSO, future RSOs will have successfully completed one of the training courses described in Criteria in the section titled ‘Radiation Safety Officer’ in VAREG “Guidance For Fixed Gauge Devices’.

Or

Alternative information demonstrating that the proposed RSO is qualified by training and experience is attached. Before being named as the RSO, future RSOs will have successfully completed one of the training courses described in Criteria in the section titled ‘Radiation Safety Officer’ in VAREG “Guidance For Fixed Gauge Devices’.

AUTHORIZED USERS

Item 6. Training For Individuals Working In Or Frequenting Restricted Areas (Check one box)

Before using radioactive material, authorized users will have successfully completed one of the training courses described in Criteria in the section titled " Training for Individuals Working In or Frequenting Restricted Areas" in VAREG " Guidance For Fixed Gauge Devices."

NOTE: If using in-house training program, submit copies of course content, sample course examination, and course instructor qualifications.

Or

Documentation of the training and experience for the proposed gauge user(s) is/are attached.

RADIOACTIVE MATERIALS

Item 7. Radioactive Material (Attach additional pages if necessary)

Element And Mass Number Cobalt-60 Krypton-85 Americium-241
 Cesium-137 Strontium-90 Ra-226
 Other Isotope (Please specify)

Item 8. Chemical And Physical Form

List name of Sealed Source Manufacturer or Distributor and Model Number	List Name of Device Manufacturer or Distributor and Model Number
Maximum Quantity (Not to exceed either the maximum activity per source or device as specified in the Sealed Source and Device Registration Certificate)	Sealed Source And Device Registration Sheet Number
Intended use	

FACILITIES AND EQUIPMENT

Item 9. Facilities And Equipment (Check boxes and attach diagram)

Diagrams of radioactive material area(s) of use are attached. AND
 The fixed gauge is secured to prevent unauthorized removal or access and these security features will not impact the safety or integrity of the source or device.

RADIATION SAFETY PROGRAM

Item 10 Radiation Safety Program

Item 10.1 Audit Program

The applicant is not required to, and should not, submit its audit program to the VDH for review during the Licensing phase. This matter will be examined during an inspection.

Item 10.2 Termination Of Activities

No response is required from the applicant during the application process. Refer to section titled "Termination of Activities" in VAREG "Guidance for Fixed Gauge Devices" for further information.

Item 10.3 Survey Instruments And Instrument Calibration (Check all that apply)

- We will have access to a survey meter that meets the Criteria in the section titled "Survey Instruments" in VAREG "Guidance for Fixed Gauge Devices." (Description attached)
- Or
- We will possess a survey meter that meets the Criteria in the section titled "Survey Instruments" in VAREG "Guidance for Fixed Gauge Devices."

AND ONE OF THE FOLLOWING

- Each survey meter will be calibrated by an organization licensed by VDH, the NRC or an Agreement State to perform survey meter calibrations.
- Or
- We will implement the model survey meter calibration program published in Appendix I in VAREG "Guidance for Fixed Gauge Devices."
- Or
- We will submit alternative calibration procedures for VDH review. (Procedures are attached)

Item 10.4 Material Receipt And Accountability (Check one box)

- Physical inventories will be conducted at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license.
- Or
- We will submit a description of the frequency and procedures for ensuring that no gauge has been lost, stolen or misplaced. (Procedures are attached)

Item 10.5 Occupational Dose (Check one box)

- We will maintain, for inspection by VDH, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits in 12 VAC 5-481-640.
- Or
- We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor.

Item 10.6 Public Dose

No response is required, in this license application, however the licensee's evaluation of public dose will be examined during an inspection.

Item 10.7 Operating And Emergency Procedures (Check one box)

- We will implement and maintain the operating and emergency procedures in Appendix L of VAREG "Guidance for Fixed Gauge Devices" and provide copies of these procedures to all gauge users.
- Or
- We will develop, implement and maintain operating and emergency procedures that will meet criteria in the section titled "Operating and Emergency Procedures" in VAREG "Guidance for Fixed Gauge Devices." (Procedures are attached)

Item 10.8 Leak Test (Check one box)

- Leak tests will be performed by an organization authorized by VDH, the NRC or an Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or an Agreement State to provide leak test kits to other licensees according to kit suppliers' instructions.

List the name and license number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or other Agreement State):

Organization Name _____ License Number _____

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, NRC or an Agreement State.

- Or
- We will perform our own leak testing and sample analysis. We will follow the model procedures in Appendix M of VAREG "Guidance for Fixed Gauge Devices."
- Or
- We will submit alternative procedures. (Procedures are attached)

Item 10.9 Maintenance (Check one box for routine cleaning and lubrication and one for non-routine maintenance)

ROUTINE CLEANING AND LUBRICATION:

- We will implement and maintain procedures for routine maintenance of our gauges according to each manufacturer's recommendations and instructions.
- Or
- Alternative procedures are attached.

NON-ROUTINE MAINTENANCE:

- We will utilize the manufacturer or another person specifically licensed to perform non-routine maintenance or repair operations that require the removal of the source from the device. Radiation surveys required by 12 VAC 5-481-750 will be performed by a person specifically authorized by VDH, the NRC or an Agreement State.
- Or
- We have provided the information listed in Appendix N of VAREG "Guidance for Fixed Gauge Devices" to support a request to perform this work "in house." (Procedures are attached)

Item 10.10 Fixed Gauge Disposal And Transfer (Check one box)

- We will return the gauge to the manufacturer for disposal or transfer the device to a specific licensee authorized to receive radioactive material.

Item 10.11 Transportation

No response is needed from applicants during the licensing process; this issue will be reviewed during inspection.

Item 10.12 Fixed Gauges used at Temporary Job Sites (Check one box)

- We will submit procedures for the use of fixed gauges at temporary job sites. (Procedures are attached)
- Or
- No temporary job sites used.

SPECIFIC LICENSE FEE

Item 11. License Fees (Refer to Virginia Administration Code 12 VAC 5-481-490)

Category:

License fee enclosed

Yes No Amount Enclosed _____

CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 12

I hereby certify that this application was prepared in conformance with Virginia Administrative Code, Chapter 481 "Radiation Protection Regulations" and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant or Authorized Individual

Date signed

Print Name and Title of above signatory



APPLICATION FOR A RADIOACTIVE MATERIAL LICENSE AUTHORIZING THE USE RADIOACTIVE MATERIAL FOR INDUSTRIAL RADIOGRAPHY

The Virginia Department of Health (VDH) is requesting disclosure of all information for the purpose of obtaining a radioactive material license. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions - Complete all items if this is an initial application or an application for renewal of a license. Refer to VAREG 'Guidance for Industrial Radiography Use.' Use supplementary sheets where necessary. Retain one copy and submit original of the entire application to: Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

APPLICATION TYPE

Item 1 Type Of Application (Check one box)

New License Renewal License Number _____

CONTACT INFORMATION

Item 2 Name and Mailing Address Of Applicant:

Item 3 Person To Contact Regarding Application:

Applicant's Telephone Number (Include area code):

Contact's Telephone Number (Include area code):

LOCATION OF RADIOACTIVE MATERIAL

Item 4 Location of Radioactive Material (Do not use Post Office Box):

<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored	Address: <input type="checkbox"/> Permanent Cell Facility	Telephone Number (Include area code):
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored	Address: <input type="checkbox"/> Permanent Cell Facility	Telephone Number (Include area code):
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored	Address: <input type="checkbox"/> Permanent Cell Facility	Telephone Number (Include area code):

Is industrial radiography performed at temporary job sites?: Yes No

RADIATION SAFETY OFFICER

Item 5 Radiation Safety Officer (RSO) (Check all that apply)

- The name of the proposed RSO and other potential designees who will be responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures.

NAME: _____

TELEPHONE NUMBER: _____
(Include area code)

AND

- We will demonstrate that the RSO has sufficient independence and direct communication with responsible management officials by providing a copy of an organizational chart by position and will confirm that the RSO has day-to-day oversight of the radiation safety activities.

AND EITHER

- We will provide the specific training and experience of the RSO. Include the following:
 1. Specific dates of certification and/or training in radiation safety.
 2. Documentation to show that the RSO has a minimum of 2,000 hours of hands-on experience as a qualified radiographer in industrial radiographic operations.
 3. Documentation to show that the RSO has obtained formal training in the establishment and maintenance of a radiation protection program.

OR

- We will provide alternative information demonstrating that the proposed RSO is qualified by training and experience (e.g. Board Certification by the American Board of Health Physicists, completion of a bachelor's and/or master's degree in the sciences with at least one year of experience in the conduct of a radiation safety program of comparable size and scope) documentation to show that the RSO has obtained formal training in the establishment and maintenance of a radiation protection program.

TRAINING FOR RADIOGRAPHERS AND RADIOGRAPHER'S ASSISTANTS

Item 6 Training For Radiographers and Radiographer's Assistants (Check box and attach requested information)

- We will submit the information outlined in section titled "Training for Radiographers and Radiographer's Assistants" in VAREG 'Guidance for Industrial Radiography Use'

RADIOACTIVE MATERIAL

Item 7 Sealed Source Radioactive Material (Attach additional pages if necessary)

Element and mass number	Sealed source manufacturer and model number
Maximum activity per source	Exposure device manufacturer and model number
Source changer manufacturer and model number	

Is Depleted Uranium used as a shielding material? Yes No

Only radiographic exposure devices, source assemblies or sealed sources, and associated equipment which meets the requirements specified in 12 VAC 5-481-1210 will be used in radiographic operations. Yes No

FINANCIAL ASSURANCE AND RECORDKEEPING FOR DECOMMISSIONING**Item 8 Financial Assurance and Recordkeeping For Decommissioning** (Check both boxes)

- We shall maintain drawings and records important to decommissioning and will transfer these records to a new licensee before licensed activities are transferred in accordance with 12 VAC 5-481-490 B or assign the records to the agency before the license is terminated.

AND

- If financial assurance is required, submit evidence per 12 VAC 5-481-450 C 6.

FACILITIES AND EQUIPMENT**Item 9 Facilities and Equipment** (Check box and attach requested information)

- We will submit the required information as listed in the section titled "Facilities and Equipment" of VAREG 'Guidance for Industrial Radiography Use'.

RADIATION SAFETY PROGRAM**Item 10 Radiation Safety Program****Item 10.1 Radiation Safety Program Audit**

The applicant is not required to submit its audit program to the agency for review during the licensing phase. This matter will be examined during an inspection.

Item 10.2 Termination Of Activities (Check box)

- We will notify the agency, in writing, within 30 days of the decision to permanently cease radioactive material use. (12 VAC 5-481-500)

Item 10.3 Instruments (Check all boxes that apply)

- We will possess and use radiation survey meter(s) that meets the Criteria in the section titled "Instruments" in VAREG 'Guidance for Industrial Radiography Use'.

AND EITHER

- If calibration is performed by a person or firm outside the applicant's organization, the calibration will be performed by a VDH, NRC or another Agreement State licensee specifically authorized to perform instrument calibration.

OR

- We will follow the survey meter calibration procedures in accordance with Appendix J in VAREG 'Guidance for Industrial Radiography Use'.

OR

- We will submit alternate procedures. (Procedures are attached)

Note: Identify the qualifications of the individuals who will perform the calibrations if performed by the applicant.

Item 10.4 Material Receipt and Accountability (Check box)

- Quarterly physical inventories (not to exceed 3 months) will be conducted of all sealed sources and/or devices containing radioactive material (including depleted uranium) and the information contained in the discussion section titled "Material Receipt and Accountability" in VAREG 'Guidance for Industrial Radiography Use' will be documented.

Item 10.5 Leak Tests (Check one box)

- Leak tests will be performed by an organization authorized by VDH, the NRC or another Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or another Agreement State to provide leak test kits to other licensees according to kit suppliers' instructions.

List the name and license number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or another Agreement State):

Organization Name _____

License Number _____

Issuing Entity _____

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, the NRC or another Agreement State.

OR

- We will perform our own leak testing and sample analysis. We will follow the procedures in Appendix K of VAREG 'Guidance for Industrial Radiography Use.'

OR

- We will submit alternative procedures. (Procedures are attached)

Item 10.6 Occupational Dosimetry (Check all boxes that apply)

- We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged monthly.

AND

- The required personnel monitoring equipment, including 0 to 2 mSv (200 mrem) dosimeters or electronic personal dosimeters, will be worn by radiographic personnel.

AND

- Alarming ratemeters set to alarm at plus or minus 20% of 500 mrem/hour will be worn by all radiography personnel.

Note: Radiography personnel at permanent radiography installations where other appropriate alarming or warning devices are in use do not need alarming ratemeters.

AND

- Pocket dosimeters and alarm ratemeters will be checked for correct response at intervals not to exceed 12 months.

AND EITHER

- If adjustment is necessary, the devices will be returned to the manufacturer.

OR

- If adjustment is necessary, procedures for adjustments are described.

Item 10.7 Public Dose

No response is required, in this license application, however the licensee's evaluation of public dose will be examined during an inspection.

Item 10.8 Quarterly Maintenance (Check both boxes)

- We have included procedures for quarterly maintenance as part of the operating and emergency procedures.

AND

- Before using a new sealed source/device combination, we will have written inspection and maintenance procedures that address the use of new equipment as a Type B transport package. In addition, we will provide training to radiographic personnel before using a new sealed source/device combination.

OPERATING AND EMERGENCY PROCEDURES**Item 10.9 Operating and Emergency Procedures**

Operating and emergency procedures must be submitted to the agency for review.

Item 10.9.1 Handling and Use Of Sealed Sources and Radiography Exposure Devices (Check box)

- We have included the following in the operating and emergency procedures:
 Step-by-step instructions for using each type of radiographic devices;
 Instructions for performing source exchanges; and
 Instructions for crankout devices should be separate from those for pipeliner devices.

Item 10.9.2 Methods and Occasions For Conducting Radiation Surveys (Check box)

- We have included in the operating and emergency procedures all surveys as described in the section titled "Methods and Occasions For Conducting Radiation Surveys" in VAREG 'Guidance for Industrial Radiography Use'.

Item 10.9.3 Methods For Controlling Access To Radiographic Areas (Check box)

- We have included procedures to control access to radiographic operations and storage areas in the operating and emergency procedures.

Item 10.9.4 Methods and Occasions For Locking and Securing Radiographic Exposure Devices, Storage Containers, and Sealed Sources (Check box)

- We have included procedures for locking and securing radiographic equipment in the operating and emergency procedures.

Item 10.9.5 Personnel Monitoring and The Use Of Personnel Monitoring Equipment (Check box)

- We have included instructions for proper use of personnel monitoring equipment in the operating and emergency procedures.

Item 10.9.6 Transporting Sealed Sources To Field Locations, Securing Exposure Devices and Storage Containers In Vehicles, Posting Vehicles, and Controlling Sealed Sources During Transportation (Check one box)

- We have included procedures for transporting sealed sources containing radioactive material, exposure devices, and source changers in the operating and emergency procedures.

OR

- Not Applicable (Devices are not transported)

Item 10.9.7 Daily Inspection and Maintenance Of Radiography Equipment (Check box)

- We have included procedures for daily inspection and maintenance of radiography equipment in our operating and emergency procedures.

Item 10.9.8 **Ratemeter Alarms Or Off-Scale Dosimeter Readings** (Check box)

We have addressed ratemeter alarms or off-scale dosimeters in the operating and emergency procedures.

Item 10.9.9 **Procedure For Identifying and Reporting Defects and Non-Compliance** (Check box)

We have included procedures for notifying management of equipment malfunction or defect in the operating and emergency procedures.

Item 10.9.10 **Required Notifications** (Check box)

We have included appropriate instructions for notifying the RSO and/or other personnel in the operating and emergency procedures.

Item 10.9.11 **Minimizing Exposure Of Persons In The Event Of An Accident** (Check box)

We have included instructions for minimizing exposure of persons in the event of an accident in the operating and emergency procedures.

Item 10.9.12 **Source Retrieval** (Check one box)

We will not perform source retrieval and will use the services of a person specifically licensed by VDH, the NRC or another Agreement State to perform the retrievals of our sources.

OR

We will perform source retrieval. We have included source retrieval procedures in the operating and emergency procedures and submit specific training for agency review.

Item 10.9.13 **Maintenance Of Records** (Check box)

We have included procedures which ensure proper maintenance of records in the operating and emergency procedures.

WASTE MANAGEMENT

Item 11 **Waste Management** (Check box)

We will return the radiography sealed source(s) to the manufacturer for disposal or transfer the radiography sealed source(s) to a specific licensee authorized by VDH, the NRC or another Agreement State to receive radioactive material.

SPECIFIC LICENSE FEE

Item 12 **License Fees** (Refer to 12 VAC 5-490.)

Category:

Application Fee Enclosed (For new applications):

Yes No Amount Enclosed \$

CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 13

I hereby certify that this application was prepared in conformance with 12 VAC 5-481 'Virginia Radiation Protection Regulations' and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant Or Authorized Individual

Date signed

Print Name and Title of above signatory



REGISTRATION CERTIFICATE – IN VITRO TESTING WITH RADIOACTIVE MATERIAL UNDER GENERAL LICENSE

Possession of radioactive material is not authorized under Virginia Radiation Protection Regulations 12 VAC 5-481-430 G until the physician, veterinarian, clinical laboratory, or hospital has filed this form with the Virginia Department of Health (VDH) and received from VDH a validated copy of this certificate with a certificate number.

Instructions – Complete all items of this application for a certificate. Retain one copy and submit original of the entire application for a certificate to the Virginia Department of Health, Radiological Health Program, 109 Governor Street, Richmond, VA 23219.

REQUESTOR

Item 1 Name And Mailing Address Of Applicant:

Item 2 Physical Address Where Radioactive Material Will Be Used
(Do not use post office box):

Telephone Number (Include Area Code):

() - x

APPLICANT

Item 3 I, The Applicant, Hereby Apply For A Certification For Use Of Radioactive Material For (Please check one):

- Myself, a duly licensed physician (authorized to dispense drugs) in the practice of medicine.
- Myself, a veterinarian in the practice of veterinary medicine.
- The above named clinical laboratory.
- The above named hospital.

RADIOACTIVE MATERIAL

Item 4 Please Check All That Apply:

- Carbon-14, in units not exceeding 370 kBq (10 microcuries) each.
 - Cobalt-57, in units not exceeding 370 kBq (10 microcuries) each.
 - Hydrogen-3 (tritium), in units not exceeding 1.85 MBq (50 microcuries) each.
 - Iodine-125, in units not exceeding 370 kBq (10 microcuries) each.
 - Mock Iodine-125 reference or calibration sources, in units not exceeding 1.85 kBq (0.05 microcurie) of Iodine-129 and 185 Bq (0.005 microcurie) of Americium-241 each.
 - Iodine-131, in units not exceeding 370 kBq (10 microcuries) each.
 - Iron-59, in units not exceeding 740 kBq (20 microcuries) each.
 - Selenium-75, in units not exceeding 370 kBq (10 microcuries) each.
-

CERTIFICATION (To be completed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 5

I hereby certify that:

- A. All information in this application for a certification is true and complete.
- B. Appropriate radiation measuring instruments are available to carry out the tests for which radioactive material will be used under the general license for in vitro testing. The test will be performed only by personnel competent in the use of the instruments and in the handling of the radioactive material.
- C. I understand that VDH requires that any change in the information furnished on this application for a certificate be reported to VDH within 30 days from the effective date of such change.
- D. I have read and understand the provisions of the general license for in vitro clinical or laboratory testing, and I understand that compliance with those provisions is required as to all radioactive material which is received, acquired, possessed, used, or transferred under the general license for which this application for a certificate is filed with VDH.

SIGNATURE - Applicant or Authorized Individual:

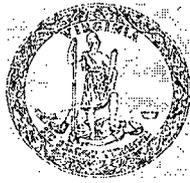
Date signed:

Print Name and Title of above signatory:

LEAVE THE SECTION BELOW BLANK – NUMBER TO BE ASSIGNED BY VDH

CERTIFICATE NUMBER:

EXPIRES:



APPLICATION FOR RADIOACTIVE MATERIAL LICENSE FOR MEDICAL USE

The Virginia Department of Health (VDH) is requesting disclosure of all information on this application for the purpose of obtaining a radioactive material license. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions: Complete all items if this is an initial application or an application for renewal of a license. Refer to VAREG "Guidance for Medical Use of Radioactive Material." Use supplementary sheets where necessary. Retain one copy and submit original of the entire application to Virginia Department of Health, Radioactive Materials Program 109 Governor Street, Room 730, Richmond, VA 23219.

APPLICATION TYPE

Item 1. Type Of Application (Check one box)

New License Renewal License Number _____

CONTACT INFORMATION

Item 2. Name and Mailing Address of Applicant

Item 3. Person to contact regarding this application

Applicant's Telephone Number (Include Area Code)
()

Contact's Telephone Number (Include Area Code)
()

LOCATION OF RADIOACTIVE MATERIAL

Item 4. Address(es) Where Radioactive Material Will Be Used Or Possessed (Do not use P.O. Box)

Address	Telephone Number (Include area code) ()
Address	Telephone Number (Include area code) ()
Address	Telephone Number (Include area code) ()
Address	Telephone Number (Include area code) ()
Address	Telephone Number (Include area code) ()

Is radioactive material used at other off-site locations? Yes No

If yes, please attach an additional sheet(s) with the address(es) and a list of activities to be conducted at each location of use.

INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY**Item 5.1 Radiation Safety Officer (RSO)** (Check all that apply and attach evidence of training and experience)

- We will provide the name of the proposed RSO and other potential designees who will be responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures. We will provide documentation showing delegation of authority to the Radiation Safety Officer.

Name: _____ Telephone Number (Include Area Code) (____) _____

AND ONE OF THE FOLLOWING

- We will provide the previous license number (if issued by VDH) or a copy of the license (if issued by the NRC or another Agreement State) that authorized the uses requested and on which the individual was specifically named as the RSO.

OR

- We will provide a copy of the certification(s) for the board(s) approved by VDH and as applicable to the types of use for which he or she has RSO responsibility.

AND

We will provide a written attestation, signed by a preceptor RSO, that the above training and experience as specified in 12 VAC 5-481-1750 has been satisfactorily completed and that the individual has achieved a level of radiation safety knowledge sufficient to independently function as a RSO. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

OR

- We will provide a description of the training and experience specified in 12 VAC 5-481-1750 demonstrating that the proposed RSO is qualified by training and experience as applicable to the types of use for which he or she has RSO responsibilities. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

AND

We will provide a written attestation, signed by a preceptor RSO, that the above training and experience as specified in 12 VAC 5-481-1750 has been satisfactorily completed and that the individual has achieved a level of radiation safety knowledge sufficient to independently function as a RSO. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

AND, IF APPLICABLE

- We will provide a description of recent related continuing education and experience as required by 12 VAC 5-481-1790.

Item 5.2 Authorized Users (AU) (Check all that apply and attach evidence of training and experience)

- We will attach a list of each proposed authorized user with the types and quantities of licensed material to be used.

AND ONE OF THE FOLLOWING FOR EACH AU

- We will provide the previous license number (if issued by VDH) or a copy of the license (if issued by the NRC or another Agreement State) on which the physician was specifically named as an AU for the uses requested.

OR

- We will provide a copy of the certification(s) for the board(s) approved by VDH and as applicable to the use requested.

AND

We will provide a written attestation, signed by a preceptor AU, that the training and experience as specified in 12 VAC 5-481-1910; 12 VAC 5-481-1940; 12 VAC 5-481-1980; 12 VAC 5-481-2010; 12 VAC 5-481-2040, as applicable, has been satisfactorily completed and that the individual has achieved a level of competency sufficient to function independently as an authorized user. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

OR

- We will provide a description of the training and experience as specified in 12 VAC 5-481-1910; 12 VAC 5-481-1940; 12 VAC 5-481-1980; 12 VAC 5-481-2010; 12 VAC 5-481-2030; 12 VAC 5-481-2040, as applicable, demonstrating that the proposed AU is qualified by training and experience for the use requested. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

AND

We will provide a written attestation, signed by a preceptor AU, that the above training and experience as specified in 12 VAC 5-481-1910; 12 VAC 5-481-1940; 12 VAC 5-481-1980; 12 VAC 5-481-2010; 12 VAC 5-481-2040 as applicable, has been satisfactorily completed and that the individual has achieved a level of competency sufficient to function independently as an authorized user. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

AND, IF APPLICABLE

- We will provide a description of recent related continuing education and experience as required by 12 VAC 5-481-1790.

Item 5.3 Authorized Nuclear Pharmacist (ANP) (Check all that apply and attach evidence of training and experience)

- Not applicable
- We will provide the name(s) of the authorized nuclear pharmacist(s).

AND ONE OF THE FOLLOWING FOR EACH ANP

- We will provide the previous license number (if issued by VDH) or a copy of the license (if issued by the NRC or another Agreement State) on which the individual was specifically named ANP.

OR

- We will provide a copy of the certification(s) for the radiopharmacy board(s) approved by VDH.

AND

We will provide a written attestation, signed by a preceptor ANP, that the training and experience as specified in 12 VAC 5-481-1770 has been satisfactorily completed and that the individual has achieved a level of competency sufficient to function independently as an authorized nuclear pharmacist. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

OR

- We will provide a description of the training and experience specified in 12 VAC 5-481-1770 demonstrating that the proposed ANP is qualified by training and experience. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

AND

We will provide a written attestation, signed by a preceptor ANP, that the training and experience as specified in 12 VAC 5-481-1770 has been satisfactorily completed and that the individual has achieved a level of competency sufficient to function independently as an authorized nuclear pharmacist. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

AND, IF APPLICABLE

- We will provide a description of recent related continuing education and experience as required by 12 VAC 5-481-1790.

Item 5.4 Authorized Medical Physicist (AMP) (Check all that apply and attach evidence of training and experience)

- Not applicable

**COMPLETE ONLY IF REQUESTING LICENSE AUTHORIZATION FOR:
HDR, GAMMA STEREOTACTIC RADIOSURGERY UNIT, TELETHERAPY OR OPHTHALMIC USE**

- We will provide the name(s) of the authorized medical physicist(s).

AND ONE OF THE FOLLOWING FOR EACH AMP

- We will provide the previous license number (if issued by VDH) or a copy of the license (if issued by the NRC or another Agreement State) on which the individual was specifically named AMP.

OR

- We will provide a copy of the certification(s) for the board(s) approved by VDH.

AND

We will provide a written attestation, signed by a preceptor AMP, that the training and experience as specified in 12 VAC 5-481-1760 has been completed and the individual has achieved a level of competency sufficient to function independently as an authorized medical physicist. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

OR

- We will provide a description of the training and experience specified in 12 VAC 5-481-1760 demonstrating that the proposed AMP is qualified by training and experience. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

AND

We will provide a written attestation, signed by a preceptor AMP, that the above training and experience as specified in 12 VAC 5-481-1760 has been completed and the individual has achieved a level of competency sufficient to function independently as an authorized medical physicist. See Appendix B of VAREG "Guidance for Medical Use of Radioactive Material" for a form that may be used for this purpose.

AND, IF APPLICABLE

- We will provide a description of recent related continuing education and experience as required by 12 VAC 5-481-1790.

TRAINING FOR WORKERS

Item 6 Training For Individuals Working In Or Frequenting Restricted Areas (Check one box)

We will follow the training programs described in Appendix H of VAREG "Guidance for Medical Uses of Radioactive Material".

OR

We will develop and implement and maintain a training program that will meet the criteria in the section titled 'Training for Individuals Working in or Frequenting Restricted Areas' of VAREG "Guidance for Medical Use of Radioactive Material." (Description is attached)

RADIOACTIVE MATERIAL

Item 7.1 Purpose(s) For Which Licensed Radioactive Material Will Be Used. (Attach additional pages if necessary)

Type of Use – Check Box if Use is Desired	Chemical and Physical Form	Maximum Amount (Curies)	Sealed Source Manufacturer or Distributor Model Number	Device Manufacturer or Distributor Model Number
<input type="checkbox"/> Use of Radioactive Material for Certain In-Vitro Clinical or laboratory testing if maximum activity exceeds 200 µCi 12 VAC 5-481-430(G)	Any	As needed	N/A	N/A
<input type="checkbox"/> Use of Calibration, Transmission, and Reference Sources not included in 12 VAC 5-481-1830 (e.g., bone densitometry sources, fluorine-18 calibration sources)	Attach a detailed description of the radioactive material and intended use.		N/A	N/A
<input type="checkbox"/> Unsealed Radioactive Material for Uptake, Dilution and Excretion Studies for Which a Written Directive is not Required 12 VAC 5-481-1900	Any	As needed	N/A	N/A
<input type="checkbox"/> Unsealed Radioactive Material for Imaging and Localization Studies for Which a Written Directive is not Required 12 VAC 5-481-1920	Any	As needed	N/A	N/A
<input type="checkbox"/> Unsealed Radioactive Material for Which a Written Directive is Required 12 VAC 5-481-1950	Any		N/A	N/A
<input type="checkbox"/> Unsealed Radioactive Material for Which a Written Directive is Required Specific radiopharmaceuticals 12 VAC 5-481-1950	For this type of use attach a detailed description of radiopharmaceutical, form, route of administration and therapeutic use.		N/A	N/A
<input type="checkbox"/> Sources for Manual Brachytherapy 12 VAC 5-481-2010	Sealed Source			

Type of Use – Check Box if Use is Desired	Chemical and Physical Form	Maximum Amount (Curies)	Sealed Source Manufacturer or Distributor Model Number	Device Manufacturer or Distributor Model Number
<input type="checkbox"/> Sources for Manual Brachytherapy – Ophthalmic Use Only 12 VAC 5-481-2010	Sealed Source			
<input type="checkbox"/> Sealed Sources for Diagnosis 12 VAC 5-481-2020	Sealed Source			
<input type="checkbox"/> Sealed Source(s) in a Device for Therapy – Teletherapy Unit 12 VAC 5-481-2040	Sealed Source			
<input type="checkbox"/> Sealed Source(s) in a Device for Therapy – Remote Afterloader Unit 12 VAC 5-481-2040	Sealed Source			
<input type="checkbox"/> Sealed Source(s) in a Device for Therapy – Gamma Stereotactic Radiosurgery Unit 12 VAC 5-481-2040	Sealed Source			
<input type="checkbox"/> Other Medical Use of Radioactive Material or Radiation from Radioactive Material (e.g. Emerging Technology) 12 VAC 5-481-2060	For this type of use attach a detailed description of the radioactive material and intended use			
<input type="checkbox"/> Non-medical use of radioactive material	Attach a detailed description of the radioactive material and intended use.			

Item 7.2 Recordkeeping for Decommissioning and Financial Assurance

The applicant is not required to submit proof of recordkeeping for decommissioning and financial assurance during the licensing phase. This matter will be examined during an inspection.

FACILITIES

Item 8.1 Facilities Diagram (Check box and attach requested information.)

- We will submit the information in the section titled ‘Facilities Diagram’ in VAREG “Guidance for Medical Use of Radioactive Material.”

Item 8.2 Radiation Monitoring Instruments (Check all that apply)

- We will identify the instrument type, sensitivity, range for each type of radiation detected and state whether the instrument will be used for ‘measuring’ or ‘detection’. Additionally if only one survey instrument is to be used we will describe what is done when the survey instrument is being calibrated or repaired.

AND

- We reserve the right to upgrade our survey instruments as necessary as long as they are adequate to measure the type and level of radiation for which they are used.

AND

- We will provide a description of the instrumentation (e.g. gamma counter, solid state detector, portable or stationary count rate meter, portable or stationary dose rate or exposure rate meter, single or multichannel analyzer, liquid scintillation counter, proportional counter) that will be used to perform required surveys or leak testing and analysis.

AND ONE OF THE FOLLOWING

- We will use radiation monitoring instruments that will be calibrated by a person authorized by VDH, the NRC or an Agreement State to perform survey meter calibrations.

OR

- We will follow survey meter calibration procedures in accordance with Appendix I of VAREG “Guidance for Medical Use of Radioactive Material.”

Item 8.3 Dose Calibrator And Other Equipment Used To Measure Dosages Of Unsealed Radioactive Material (Check all that apply)

Not applicable. (Will only use unit doses or no unsealed radioactive material use)

OR

We will identify the instrument type, manufacturer, and model number. Additionally, if only one dose calibrator is possessed, we will describe what is done when the dose calibrator is being calibrated or repaired.

AND

Equipment used to measure dosages will be calibrated in accordance with nationally recognized standards or the manufacturer's instructions.

Item 8.4 Dosimetry Equipment – Calibration And Use (Check all that apply)

**COMPLETE THIS SECTION ONLY IF REQUESTING LICENSE AUTHORIZATION FOR:
HDR, GAMMA STEREOTACTIC RADIOSURGERY UNIT, TELETHERAPY OR BRACHYTHERAPY USE**

We will calibrate dosimetry equipment in accordance with the requirements in 12 VAC 5-481-2040.

AND

We have developed and will implement a written calibration procedure for a therapy sealed source that meets the requirements in 12 VAC 5-481-2010 and 12 VAC 5-481-2040 (as applicable to the type of medical use requested).

AND

We will identify the dosimetry system, manufacturer and model number.

Item 8.5 Other Equipment And Facilities (Check box and attach requested information)

A detailed description of additional equipment and facilities available for the safe use and storage of radioactive materials requested is attached.

RADIATION PROTECTION PROGRAM**Item 9.1 Audit Program**

The applicant is not required to submit its audit program to VDH for review during the licensing phase. This matter will be examined during an inspection.

Item 9.2 Occupational Dose (Check all that apply)

We will provide a description of facilities and equipment used for monitoring occupational exposure. (Description is attached)

AND ONE OF THE FOLLOWING

We will follow the procedures in Appendix L of VAREG "Guidance for Medical Use of Radioactive Material" for monitoring occupational dose.

OR

We have developed and will implement written procedures for monitoring occupational dose in accordance with 12 VAC 5-481-630 that meets the requirements in 12 VAC 5-481 'Radiation Protection Regulations', Part IV 'Standards for Protection Against Radiation.' (Procedures are attached)

Item 9.3 Public Dose

No response is required, in this license application; however the licensee's evaluation of public dose will be examined during an inspection.

Item 9.4 Minimization Of Contamination (Check one box)

We will follow the cleanup procedures from Appendix R, Tables 9 and 10, of VAREG "Guidance for Medical Use of Radioactive Material" to minimize the amount of radioactive contamination and radioactive waste generated at our facility.

OR

We will develop, implement and maintain procedures to minimize the amount of radioactive contamination and radioactive waste generated at our facility. (Procedures are attached.)

Item 9.5 Operating And Emergency Procedures

No response is required, in this license application; however the licensee's operating and emergency procedures will be examined during an inspection.

Item 9.6 Material Receipt And Accountability (Check one box)

- Physical inventories will be conducted at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license.

OR

- We will submit a description of the frequency and procedures for ensuring that no radioactive material has been lost, stolen or misplaced (Procedures are attached).

Item 9.7 Ordering And Receiving (Check one box)

- We will develop, implement and maintain ordering and receiving procedures that will meet the criteria in the section titled 'Ordering and Receiving' of VAREG "Guidance for Medical Use of Radioactive Material." (Procedures are attached)

OR

- We will follow procedures for ordering and receiving in accordance with Appendix O of VAREG "Guidance for Medical Use of Radioactive Material."

Item 9.8 Opening Packages

No response is required, in this license application; however the licensee's package opening procedure will be examined during an inspection.

Item 9.9 Leak Test (Check one box)

- Leak tests will be performed by an organization authorized by VDH, the NRC or another Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or another Agreement State to provide leak test kits to other licensees according to kit suppliers' instructions.

List the name and license number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or another Agreement State):

Organization Name: _____ License Number: _____

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, the NRC or another Agreement State.

OR

- We will perform our own leak testing and sample analysis. We will follow the procedures in Appendix Q of VAREG "Guidance for Medical Use of Radioactive Material."

OR

- We will submit alternative procedures. (Procedures are attached)

Item 9.10 Area Surveys (Check one box)

- We will develop, implement and maintain procedures for area surveys that will meet the criteria in the section titled 'Area Surveys' in VAREG "Guidance for Medical Use of Radioactive Material." (Procedures are attached)

OR

- We will follow the procedures for area survey in Appendix R of VAREG "Guidance for Medical Use of Radioactive Material."

Item 9.11 Procedures For Administration of Radioactive Material Requiring A Written Directive (Check one box)

- We will develop, implement and maintain procedures for administration of radioactive material requiring a written directive that will meet the criteria in the section titled 'Procedures for Administrations Requiring a Written Directive' in VAREG "Guidance for Medical Use of Radioactive Material."

OR

- Not Applicable.

Item 9.12 Safe Use Of Unsealed Radioactive Material (Check one box)

- We will develop, implement and maintain procedures for the safe use of unsealed radioactive material, that will meet the criteria in the section titled 'Safe Use of Unsealed Radioactive Material' in VAREG "Guidance for Medical Use of Radioactive Material." (Procedures are attached)

OR

- We will follow the procedures for the safe use of unsealed radioactive material in Appendix T of VAREG "Guidance for Medical Use of Radioactive Material."

OR

- Not Applicable.

Item 9.13 Maintenance Of Therapy Devices Containing Sealed Sources (Check all that apply)

- Not Applicable. (No therapy devices containing sealed sources)

OR

- We will contract with personnel who are licensed by VDH, the NRC or another Agreement State to perform maintenance and repair services on the specific therapy device(s) possessed by the licensee.

OR THE FOLLOWING THREE CONDITIONS MUST BE MET

- We will name the proposed employee or employees and types of maintenance and repair requested.

AND

- We will provide a description of the training and experience demonstrating that the proposed employee or employees is/are qualified by training and experience for the use requested.

AND

- We will provide a copy of the manufacturer's training certification and an outline of the training.

Item 9.14 Spill Procedures (Check one box)

- We will develop, implement and maintain procedures for response to spills of radioactive material. (Procedures are attached.)

OR

- We will follow procedures for response to spills of radioactive material in accordance with Appendix N of VAREG "Guidance for Medical Use of Radioactive Material".

OR

- Not Applicable. (Unsealed radioactive material not used)

Item 9.15 Emergency Response For Sealed Sources Or Devices Containing Sealed Sources (Check one box)

- We will develop, implement and maintain procedures for emergency response for sealed sources or devices containing sealed sources. (Procedures are attached)

OR

- Not Applicable. (Brachytherapy sources, high activity sealed sources or devices containing sealed sources not used)

Item 9.16 Release of Patients Or Human Research Subjects (Check one box)

- We will develop, implement and maintain procedures for release of patients or human research subjects that will meet the criteria in the section titled 'Release of Patients or Human Research Subjects' in VAREG "Guidance for Medical Use of Radioactive Material." (Procedures are attached)

OR

- We will follow the procedures for release of patients or human research subjects in Appendix U of VAREG "Guidance for Medical Use of Radioactive Material."

OR

- Not applicable. (Studies only performed under 12 VAC 5-481-1900 & 12 VAC 5-481-1920)

Item 9.17 Mobile Medical Service (Check one box)

We will provide the information requested, along with any procedures mentioned in Appendix V of VAREG "Guidance for Medical Use of Radioactive Material." (Procedures are attached)

OR

Not applicable.

Item 9.18 Transportation

No response is needed during the license process; this issue will be reviewed during inspection.

Note: Before offering a Type B package for shipment, a licensee needs to have registered as a user of the package and obtained the agency's approval of its QA Program. Alternatively, the licensee may choose to transfer possession of radioactive material to a manufacturer (or distributor) (or service licensee) with a VDH, NRC or another agreement state license who then acts as the shipper.

Item 9.19 Sealed Source Inventory

Item 9.20 Records of Dosages and Use of Brachytherapy Source

Item 9.21 Safety Procedures For Treatments Where Patients Are Hospitalized

Item 9.22 Recordkeeping

Item 9.23 Reporting

No response is needed during the licensing process; these issues will be reviewed during inspection.

WASTE MANAGEMENT

Item 10 Waste Management (Check all that apply)

We will follow the waste procedures published in Appendix X of VAREG "Guidance for Medical Use of Radioactive Material."

AND / OR

We will use: Decay-In-Storage, or Disposal of Liquids Into Sanitary Sewerage waste procedures that are published in Appendix X of VAREG "Guidance for Medical Use of Radioactive Material."

AND / OR

We will provide procedures for waste collection, storage and disposal by any of the authorized methods described in Item 10 'Waste Management' of VAREG "Guidance for Medical Use of Radioactive Material." We will contact VDH for guidance to obtain approval of any method(s) of waste disposal other than those discussed in Item 10 'Waste Management' of VAREG "Guidance for Medical Use of Radioactive Material." (Procedures are attached)

Fees

Item 11 License Fees (12 VAC 5-490)

Category:

Application Fee Enclosed (For new applications):

Yes No Amount Enclosed: \$ _____

CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 12

I hereby certify that this application was prepared in conformance with 12 VAC 5-481 'Radiation Protection Regulations' and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant Or Authorized Individual

Date signed

Print Name and Title of above signatory



APPLICATION FOR RADIOACTIVE MATERIAL LICENSE AUTHORIZING THE USE OF SEALED SOURCES IN PORTABLE GAUGES OR XRF DEVICES

The Virginia Department of Health (VDH) is requesting disclosure of information. Completion of this form is required to obtain a Radioactive Material License. Failure to provide all requested information may result in denial or delay of a Radioactive Material License.

Instructions – Complete all items. Refer to VAREG ‘Guidance for Portable Gauges or XRF Devices’ for additional information. Use supplementary sheets if necessary. Retain a copy and submit the original of the entire application to: Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

APPLICATION TYPE

Item 1 Type of Application (Check one box)

New License Renewal License Number _____

CONTACT INFORMATION

Item 2 Applicant - Name and Mailing Address

Item 3 Contact Person – Name

Applicant - Telephone Number (Include area code)

Contact Person - Telephone Number (Include area code)

LOCATION OF RADIOACTIVE MATERIAL

Item 4 List all address(es) where radioactive material(s) will be used or possessed. Attach additional pages if necessary.

	Address (Do not use Post Office box)	Telephone Number (Include area code)
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used/Stored		
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used/Stored		
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used/Stored		

Are portable gauge devices and/or portable XRFs used at temporary jobsites?: Yes No

Are portable gauge devices stored at temporary jobsites?: Yes No

If yes, check the following boxes:

- We will perform and maintain documentation of radiation surveys to ensure that dose levels are less than 2 mrem in any one hour and 100 mrem/yr at all temporary job site storage locations.
- We will store the device at the temporary job site in a locked room, trailer or other secure location to prevent unauthorized removal of the device.
- We will minimize exposures for occupational and non-occupational workers when selecting storage location.
- We will limit storage at a temporary job site to 180 days per calendar year.

RADIATION SAFETY OFFICER

Item 5 Radiation Safety Officer (RSO) (Attach evidence of training and experience and check one box)

Name – Radiation Safety Officer	Telephone Number (Include area code)
---------------------------------	--------------------------------------

Before obtaining radioactive material, the proposed RSO will have successfully completed one of the training courses described in the Criteria section titled "Individual(s) Responsible for Radiation Safety Program and Their Training and Experience-Radiation Safety Officer" in VAREG 'Guidance for Portable Gauges or XRF Devices'.

Or

Alternative information demonstrating that the proposed RSO is qualified by training and experience is attached.

AUTHORIZED USERS

Item 6 Training for individuals working in or frequenting restricted areas (check one box)

Before using radioactive material, authorized users will have successfully completed one of the training courses described in the Criteria section titled "Training for Individuals Working In or Frequenting Restricted Areas" in VAREG 'Guidance for Portable Gauges or XRF Devices.'

NOTE: If using an in-house training program, submit copy of course content, sample course examination and course instructor qualifications.

Or

Documentation of the training and experience for the proposed gauge user(s) is attached.

NOTE: These individuals will be listed on the license as authorized users. An amendment request is required to add new authorized users.

RADIOACTIVE MATERIAL

Item 7 Radioactive Material (Attach additional pages if necessary)

Element and mass number	Chemical and physical form SEALED SOURCE
Source manufacturer and model number	Maximum activity per source
Device manufacturer and model number	Intended Use

FACILITIES AND EQUIPMENT

Item 8 Facilities And Equipment (Check box and attach diagram.)

Diagrams of radioactive material storage area(s) are attached.

RADIATION SAFETY PROGRAM

Item 9 Radiation Safety Program

Item 9.1 Audit Program

The applicant is not required to submit its audit program to the agency for review during the licensing phase. This matter will be examined during an inspection.

Item 9.2 Termination Of Activities (Check box)

- We will notify VDH, in writing, within 30 days of the decision to permanently cease radioactive material use. (12 VAC 5-481-500)

Item 9.3 Instruments (Check one box)

- We will possess and use a radiation survey meter that meets the Criteria in the section titled "Instruments" in VAREG 'Guidance for Portable Gauges or XRF Devices.'

Or

- We will submit an alternative procedure for determining source integrity after an incident involving the portable gauge(s). (Procedures are attached)

Or

- Not Applicable [XRF Device(s)]

Item 9.4 Material Receipt And Accountability (Check one box)

- We will conduct physical inventories, at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license.

Or

- We will submit a description of the frequency and procedures for ensuring that no gauge has been lost, stolen or misplaced. (Procedures are attached)

Item 9.5 Occupational Dosimetry (Check one box)

- We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor.

Or

- We will maintain, for inspection by VDH, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits in 12 VAC 5-481-640. (See Appendix I in VAREG 'Guidance for Portable Gauges or XRF Devices.')

Item 9.6 Public Dose

No response is required in this license application; however, the licensee's evaluation of public dose will be examined during an inspection.

Item 9.7 Operating And Emergency Procedures (Check one box)

- We will implement and maintain the operating and emergency procedures in Appendix H of VAREG 'Guidance for Portable Gauges or XRF Devices' and provide copies of these procedures to all gauge or XRF users and at each job site.

Or

- Operating and emergency procedures will be developed, implemented, maintained and provided to all gauge or XRF users at each job site and will meet criteria in the section titled "Radiation Safety Program – Operating and Emergency Procedures" in VAREG 'Guidance for Portable Gauges or XRF Devices.' (Procedures are attached)
-

Item 9.8 Leak Tests (Check one box)

- Leak tests will be performed by an organization authorized by VDH, the NRC or another Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or another Agreement State to provide leak test kits to other licensees according to kit supplier's instructions.

List Name and License number of organization authorized to perform or analyze leak test. (Specify whether VDH, NRC, or another Agreement State)

Organization Name License Number Issuing Agency

NOTE: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, the NRC, or another Agreement State.

Or

- We will perform leak testing and sample analysis and will follow the model procedures in Appendix J of VAREG 'Guidance for Portable Gauges or XRF Devices.'

Or

- We will submit alternative procedures. (Procedures are attached)

Item 9.9 Maintenance (Check one box for routine cleaning and lubrication and one for non-routine maintenance)

Routine cleaning and lubrication:

- We will implement and maintain procedures for routine maintenance of our gauge(s) or XRF(s) according to each manufacturer's recommendations and instructions.

Or

- Alternative procedures are attached.

Non-routine maintenance:

- We will send the gauge(s) or XRF(s) to the manufacturer or other person authorized by VDH, the NRC or another Agreement State to perform non-routine maintenance or repair operations that require the removal of the source or source rod from the gauge(s) or XRF(s).

Or

- We will provide the information listed in Appendix G of VAREG 'Guidance for Portable Gauges or XRF Devices' to support a request to perform this work "in house."

Item 9.10 Transportation

No response is needed during the license process; this issue will be reviewed during inspection.

Item 9.11 Waste Management - Gauge or XRF Disposal And Transfer (Check box)

- We will transfer the gauge or XRF to the manufacturer for disposal or transfer the device to a specific licensee, authorized to receive radioactive material.

SPECIFIC LICENSE FEE

Item 10 License Fees (Refer to 12 VAC 5-490.)

Category: Application Fee Enclosed (For new applications): Yes No Amount Enclosed \$

CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 11

I hereby certify that this application was prepared in conformance with 12 VAC 5-481 "Virginia Radiation Protection Regulations" and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant Or Authorized Individual

Date signed

Print Name and Title of above signatory



APPLICATION FOR A RADIOACTIVE MATERIAL LICENSE FOR A COMMERCIAL RADIOPHARMACY

The Virginia Department of Health is requesting disclosure of all information on this application for the purpose of obtaining a radioactive material license. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions: Complete all items if this is an initial application or an application for renewal of a license. Refer to VAREG "Guidance for Commercial Radiopharmacy." Use supplementary sheets where necessary. Retain one copy and submit original of the entire application to the Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219

APPLICATION TYPE

Item 1 Type Of Application (Check One Box)

New License Renewal License Number _____

CONTACT INFORMATION

Item 2 Name And Mailing Address Of Applicant:

Item 3 Person To Contact Regarding Application:

Applicant's Telephone Number (Include Area Code):

Contact's Telephone Number (Include Area Code):

LOCATION OF RADIOACTIVE MATERIAL

Item 4 Address(es) Where Radioactive Material Will Be Used Or Possessed (Do not use Post Office Box):

Address	Telephone Number (Include area code)
Address	Telephone Number (Include area code)
Address	Telephone Number (Include area code)

RADIATION SAFETY OFFICER

Item 5 Radiation Safety Officer (RSO) (Check all that apply and attach evidence of training and experience)

NAME _____

TELEPHONE NUMBER _____
(Include area code)

- We will submit an organizational chart describing the management structure, reporting paths, and the flow of authority between executive management and the RSO.

AND EITHER

- A copy of the license (VDH, the NRC or an Agreement State) that authorized the uses requested and on which the individual was specifically named as the RSO, an Authorized Nuclear Pharmacist, or an Authorized User.

OR

- A description of the training and experience demonstrating that the proposed RSO is qualified by training and experience as applicable to commercial nuclear pharmacies. Appendix G in VAREG 'Guidance for Commercial Radiopharmacy' should be used in documenting and determining required training and experience.

AUTHORIZED NUCLEAR PHARMACIST

Item 6 Authorized Nuclear Pharmacist (ANP) (Check all that apply and attach evidence of training and experience)

NAME _____

TELEPHONE NUMBER _____
(Include area code)

- We will provide a copy of the State pharmacy licensure or registration for each pharmacist.

AND ONE OF THE FOLLOWING

- We will provide a copy of the license (VDH, the NRC or an Agreement State) on which the individual was specifically named as an ANP.

OR

- We will provide a copy of the permit maintained by a licensee of broad scope.

OR

- We will provide a copy of the certification(s) for the radiopharmacy board(s) approved by VDH.

OR

- We will provide a description of the training and experience demonstrating that the proposed ANP is qualified by training and experience.

OR

- We will provide a written certification, signed by a preceptor ANP, that the above training and experience as specified in 12 VAC 5-481-470 has been completed and that the individual has achieved a level of competency sufficient to independently operate a nuclear pharmacy.

AUTHORIZED USERS

Item 7 Authorized Users (AU) (Check all that apply)

- We will provide the individual's name and identify types, quantities, and proposed uses of licensed material.

AND ONE OF THE FOLLOWING

- We will provide a copy of the license (VDH, the NRC or an Agreement State) on which the individual was specified as an AU for the types and quantities and proposed uses of licensed materials.

OR

- We will provide a copy of the permit maintained by a licensee of broad scope that identifies the individual as an AU for the types, quantities, and proposed uses of licensed materials.

OR

- We will provide a description of the training and experience demonstrating that the proposed AU is qualified by training and experience to use the requested licensed materials is attached. Appendix G in VAREG 'Guidance for Commercial Radiopharmacy', may be helpful in describing the training and experience required.

TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS**Item 8.1 Occupationally Exposed Workers And Ancillary Personnel** (Check box if applicable)

- We have developed and will implement and maintain written procedures for a training program for each group of workers, including: topics covered; qualifications of the instructors; method of training; method for assessing the success of the training; and the frequency of training and refresher training. Procedures are attached.

Item 8.2 Personnel Involved In Hazardous Materials Package Preparation And Transport (Check box if applicable)

- We have developed and will implement and maintain written procedures for training personnel involved in hazardous materials package preparation and transport that meet the requirements in 49 CFR 172.700, 49 CFR 172.702 AND 49 CFR 172.704, as applicable. Procedures are attached.

RADIOACTIVE MATERIALS**Item 9 Radioactive Material** (Attach additional pages if necessary)**Item 9.1 Radioisotope(s)****Item 9.2 Chemical/Physical Form of radioisotopes requested.**

Are open containers of potentially volatile materials (Iodine-131) manipulated at this location?

Yes No

If yes, process and engineering controls must be described.

Are sealed sources used at this location?

Yes No

If yes, please fill out Items 9.3 – 9.5, otherwise proceed to Item 9.6

Item 9.3 Sealed Source Manufacturer or Distributor and Model Number of sealed sources requested.**Item 9.4 Device Manufacturer or Distributor and Model Number of devices requested.**

Is Depleted Uranium used as a shielding material?

Yes No

If yes, specify the total amount (in Kilograms) _____

Item 9.5 Maximum possession limit for each radioisotope requested.**Item 9.6 Proposed use for each radioisotope requested.**

PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED**Item 10 Distribution And Redistribution Of Licensed Materials****Item 10.1 Radiopharmaceuticals** (Check both boxes)

- We will confirm that radiopharmaceuticals will be prepared under the supervision of an ANP or will be obtained from a supplier authorized pursuant to 12 VAC 5-481-470, or under equivalent NRC or Agreement State requirements;

AND

- We will describe all licensed material to be distributed or redistributed.

Item 10.2 Generators (Check all boxes if using generators)

- Confirm that the generators will be obtained from a manufacturer licensed pursuant to 12 VAC 5-481-470, or under equivalent NRC or Agreement State requirements.

AND

- Confirm that unused generators will be redistributed without opening or altering the manufacturer's packaging.

Item 10.3 Redistribution Of Generators (Check all boxes if redistributing generators)

- We will submit a description of the procedures and instructions for safely repackaging the generators, including the use of the manufacturer's original packaging and minimization of migration of radioactive fluids out of the generator during transport.

AND

- Confirm that the manufacturer's packaging and labeling will not be altered.

AND

- Confirm that the generator will not be distributed beyond the expiration date shown on the generator label.

AND

- Confirm that the redistributed generator will be accompanied by the manufacturer-supplied leaflet or brochure that provides radiation safety instructions for handling and using the generator.

AND

- Confirm that only generators used in accordance with the manufacturer's instructions will be redistributed.

Note: Although redistribution of used generators may be authorized by VDH. VDH approval does not relieve the licensee from complying with applicable FDA or other Federal or state requirements.

Item 10.4 Redistribution Of Sealed Sources – For Brachytherapy Or Diagnosis (Check all boxes if redistributing sealed sources, for brachytherapy or diagnosis)

- Confirm that the sealed sources for brachytherapy or diagnosis to be redistributed will be obtained from a manufacturer authorized to distribute sealed sources for brachytherapy or diagnosis in accordance with a specific license issued in pursuant to 12 VAC 5-481-470, or under equivalent NRC or Agreement State requirements.

AND

- Confirm that the manufacturer's packaging, labeling and shielding will not be altered and that redistributed sources will be accompanied by the manufacturer-supplied package insert, leaflet, brochure, or other document that provides radiation safety instructions for handling and storing the sources.

Item 10.5 Redistribution Of Calibration And Reference Sealed Sources (Check all boxes if redistributing calibration and reference sealed sources)

- Confirm that calibration and reference sealed sources to be redistributed to medical use licensees will be obtained from a person licensed pursuant to 12 VAC 5-481-470, or under equivalent NRC or Agreement State requirements, to initially distribute such sources.

AND

- Confirm that the manufacturer's labeling and packaging will not be altered and that redistributed sources will be accompanied by the manufacturer-supplied calibration certificate and the leaflet, brochure, or other document that provides radiation safety instructions for handling and storing the sources.

Item 10.6 Redistribution Of Prepackaged Units For In-Vitro Tests (Check box if redistributing prepackaged units for In-vitro tests)

- Confirm that the prepackaged units for in-vitro tests to be redistributed will have been obtained from a manufacturer authorized to distribute the prepackaged units for in-vitro tests in accordance with a specific license issued pursuant to 12 VAC 5-481-470, or under equivalent license of the NRC or an Agreement State.

Item 10.7 Redistribution To General Licensee (Check all boxes if redistributing to a general licensee)

- Confirm that the manufacturer's packaging and labeling of the prepackaged units for in-vitro tests will not be altered in any way.

AND

- Confirm that each redistributed prepackaged unit for in-vitro tests will be accompanied by the manufacturer-supplied package insert, leaflet, or brochure that provides radiation safety instructions for general licensees.

Item 10.8 Redistribution To Specific License (Check both boxes)

- Confirm that the labels, package insert, leaflet, brochure, or other documents accompanying the redistributed prepackaged units for in-vitro test will NOT reference general licenses, exempt quantities, or VDH, NRC, or Agreement State regulations that authorize a general license. (12 VAC 5-481-430 G)

AND

- Confirm that the labeling on redistributed prepackaged units for in-vitro tests will conform to the requirements of 12 VAC 5-481-850 and 12 VAC 5-481-880.

PREPARATION OF RADIOPHARMACEUTICALS**Item 11 Preparation Of Radiopharmaceuticals** (Check box)

- We will attach a document that indicates the types of radiopharmaceuticals preparation activities we intend to perform (e.g. compounding of Iodine-131 capsules, radioiodination, and technetium-99m kit preparation). (Document is attached)

SERVICE ACTIVITIES**Item 12 Service Activities** (Check box)

- We will submit specific procedures for all radiation protection services that we intend to provide to other licensees (e.g. customers). (Procedures are attached)

FACILITIES AND EQUIPMENT**Item 13 Facilities And Equipment** (Check boxes and attach diagram.)

- We will provide copies of registration or a license from a State Board of Pharmacy as a pharmacy; or evidence that we are operating as a nuclear pharmacy within a state medical institution.

Note: There may be a jurisdiction that does not recognize the practice of commercial radiopharmacy. In these cases, the applicant must submit evidence that it is registered or licensed with the FDA as a drug manufacturer.

AND

- We will provide a description of the facilities and equipment to be made available where radioactive material will be used. A diagram should provide be submitted showing the entire facility and identify activities conducted in all contiguous areas surrounding the facility. Diagrams should be drawn to specified scale, or dimensions should be indicated. For additional information refer to VAREG 'Guidance for Commercial Radiopharmacy'. (Description is attached)

RADIATION SAFETY PROGRAM**Item 14 Radiation Safety Program****Item 14.1 Audit Program**

The applicant is not required to, and should not, submit its audit program to the agency for review during the licensing phase. This matter will be examined during an inspection.

Item 14.2 Radiation Monitoring Instruments (Check one box)

- We will use equipment that meets the radiation monitoring instrument specifications and implement the survey meter calibration program published in Appendix J of VAREG 'Guidance for Commercial Radiopharmacy'.

OR

- We will use equipment that meets the radiation monitoring instrument specifications published in Appendix J of VAREG 'Guidance for Commercial Radiopharmacy', and instruments will be calibrated by other licensees authorized by VDH, the NRC or an Agreement State to perform that service.

OR

- We will provide a description of alternative equipment to be used for radiation monitoring and alternative procedures for the calibration of radiation monitoring equipment. (Procedures are Attached)

Item 14.3 Material Receipt And Accountability (Check all boxes)

- We have developed, and will implement and maintain, written procedures for safely opening packages that meet the requirements in 12 VAC 5-481-900.

AND

- We will conduct physical inventories of sealed sources of licensed material at intervals not to exceed 6 months.

AND

- We have developed, and will implement and maintain written procedures for radioactive material accountability and control to ensure that: (Procedures are attached)

1. License possession limits are not exceeded;
2. Radioactive material in storage is secured from unauthorized access or removal;
3. Radioactive material not in storage is maintained under constant surveillance and control; and
4. Records of receipt, transfer, and disposal of licensed material are maintained.

Item 14.4 Occupational Dosimetry (Check all that apply)

- We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor.

AND / OR

- We will maintain for inspection by the agency, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits in 12 VAC 5-481-640.

Item 14.5 Public Dose

No response is required, in this license application, however the licensee's evaluation of public dose will be examined during an inspection.

Item 14.6 Safe Use Of Radionuclides And Emergency Procedures (Check box)

- We will develop, implement and maintain safe use of radionuclides and emergency procedures that meets the criteria in the section titled 'Safe Use of Radionuclides and Emergency Procedures' in VAREG 'Guidance for Commercial Radiopharmacy'. (Procedures are Attached)

Item 14.7 Surveys (Check one box)

- We will survey our facility and maintain contamination levels in accordance with the survey frequencies and contamination levels published in Appendix R of VAREG 'Guidance for Commercial Radiopharmacy'.

OR

- We will develop, implement and maintain written procedures for a survey program that specifies the performance of radiation and contamination level surveys in restricted and unrestricted areas, personnel contamination monitoring, action levels, and the frequencies and records maintenance of those surveys and monitoring that meet the requirements in 12 VAC 5-481-100, 12 VAC 5-481-750 and 12 VAC 5-481-1000. (Procedures attached)

Item 14.8 Dose Calibrator And Other Dosage Measuring Equipment (Check all that apply)

- We will describe the types of systems (measurement or combination of measurement and calculation) that we intend to use for the measurement of alpha-beta, and photon-emitting radioactive drugs.

AND

- We will develop, implement and maintain a written procedure for the performance of dose measurement system checks and tests that meet the requirements in 12 VAC 5-481-470. (Procedures are attached)

AND EITHER

- We will provide, if applicable, a sample calculation for determining beta-correction factors for dose calibrators with ionization chambers.

OR

- We will include, if applicable, a means for ensuring the accuracy of beta-correction factors supplied by the instrument manufacturer, or other entity.

Item 14.9 Radioactive Drug Labeling For Distribution (Check both boxes)

- We will describe all labels, indicating the colors to be used, that will accompany the products and describe where each label is placed (e.g. on the "transport radiation shield" or the container used to hold the radioactive drug); (Description is attached)

AND

- Agree to affix the required labels to all "transport radiation shields" and each container used to hold the radioactive drugs.

Item 14.10 Radioactive Drug Shielding For Distribution (Check box)

- For each drug to be distributed, we will (except for products intended for redistribution without manipulation and in the manufacturer's original shipping package):
 - Indicate the radionuclide and the maximum activity for each type of container (e.g. vial, syringe);
 - Describe the type and thickness of the "transport radiation shield" provided for each type of container; and
 - Indicate the maximum radiation level to be expected at the surface of each "transport radiation shield" when the radioactive drug container is filled with the maximum activity.

NOTE: It is not acceptable to State that the applicant will comply with DOT regulations. The dose rate limits that DOT imposes apply to the surface of the package, not the surface of the "Transport Radiation Shield."

Item 14.11 Leak Test (Check one box)

- Leak tests will be performed by an organization authorized by VDH, the NRC or an Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or an Agreement State to provide leak test kits to other licensees according to kit supplier's instructions.
License number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or other Agreement State):
Organization Name: _____ License Number _____

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, NRC or an Agreement State.

OR

- We will perform our own leak testing and sample analysis. We will follow the procedures in Appendix L of VAREG 'Guidance for Commercial Radiopharmacy'.

OR

- We will submit alternative procedures. (Procedures are attached)

WASTE DISPOSAL AND TRANSFER

Item 15 Waste Disposal And Transfer

Item 15.1 Waste Management (Check box)

- We will develop, implement and maintain procedures for waste collection, storage and disposal by any of the authorized methods described in the section titled 'Waste Management' of VAREG 'Guidance for Commercial Radiopharmacy'. We will contact VDH for guidance to obtain approval of any method(s) of waste disposal other than those discussed in the section titled 'Waste Management' of VAREG 'Guidance for Commercial Radiopharmacy'. (Procedures are attached)

Item 15.2 Returned Waste From Customers (Check one box)

- We will develop, implement and maintain procedures for returned waste from customers, that will meet the criteria in the section titled 'Returned Waste from Customers' in VAREG 'Guidance for Commercial Radiopharmacy'. (Procedures are attached)

OR

- We will follow the procedures for returned waste from customers in Appendix S of VAREG 'Guidance for Commercial Radiopharmacy'.

SPECIFIC LICENSE FEE

Item 16 License Fees (Refer to 12 VAC 5-490)

Category:	License fee enclosed <input type="checkbox"/> Yes <input type="checkbox"/> No Amount Enclosed _____
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CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 17

I hereby certify that this application was prepared in conformance with 12 VAC 5-481 'Virginia Radiation Protection Regulations' and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant Or Authorized Individual	Date signed
--	-------------

Print Name and Title of above signatory



APPLICATION FOR RADIOACTIVE MATERIAL LICENSE AUTHORIZING THE USE OF SEALED SOURCES

The Virginia Department of Health (VDH) is requesting disclosure of all information on this application for the purpose of obtaining a radioactive material license. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions – Complete all items. Refer to VAREG “Guidance for The Use of Sealed Sources” for additional information. Use supplementary sheets if necessary. Retain a copy and submit the original of the entire application to: Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

APPLICATION TYPE

Item 1 Type of Application (Check one box)

New License Renewal License Number _____

CONTACT INFORMATION

Item 2. Name and Mailing Address of Applicant

Item 3. Person to contact regarding this application

Applicant's Telephone Number (Include Area Code)

() -

Contact's Telephone Number (Include Area Code)

() -

LOCATION OF RADIOACTIVE MATERIAL

Item 4 List all address(es) where radioactive material(s) will be used or possessed. (Attach additional pages if necessary)

Address (Do not use Post Office box)

Telephone Number (Include area code)

Used

() -

Stored

Used and Stored

Used

() -

Stored

Used and Stored

Used

() -

Stored

Used and Stored

Are sealed sources used at temporary jobsites?: Yes No

RADIATION SAFETY OFFICER

Item 5 Radiation Safety Officer (RSO) (Check both boxes)

The name of the proposed RSO and other potential designees who will be responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures.

NAME:

TELEPHONE NUMBER: () -
 (Include area code)

AND

Information demonstrating that the proposed RSO is qualified by training and experience is attached.

AUTHORIZED USERS**Item 6 Authorized Users** (check all that apply)

We will attach a list of each proposed authorized user with the types and quantities of licensed material to be used.

AND

Information is attached demonstrating that each proposed authorized user is qualified by training and experience to use the requested licensed material.

NOTE: If requesting authorization to perform non-routine maintenance, submit outline of the instruction and training for individuals performing non-routine maintenance.

RADIOACTIVE MATERIAL**Item 7 Radioactive Material** (Attach additional pages if necessary)

Element and mass number	Chemical and physical form SEALED SOURCE
Source manufacturer and model number	Maximum activity per source
Device manufacturer and model number	Intended use

FACILITIES AND EQUIPMENT**Item 8 Facilities And Equipment** (Check box and attach diagram.)

Diagrams of radioactive material storage area(s) are attached.

RADIATION SAFETY PROGRAM**Item 9 Radiation Safety Program****Item 9.1 Audit Program**

The applicant is not required to submit its audit program to the agency for review during the licensing phase. This matter will be examined during an inspection.

Item 9.2 Radiation Monitoring Instruments (Check all that apply)

We will have access to a survey meter that meets the Criteria in the section titled "Radiation Monitoring Instruments" in VAREG "Guidance for Uses of Sealed Sources". (Description attached)

OR

We will possess a survey meter that meets the Criteria in the section titled "Radiation Monitoring Instruments" in VAREG "Guidance for Uses of Sealed Sources."

AND ONE OF THE FOLLOWING

Each survey meter will be calibrated by an organization licensed by VDH, the NRC or another Agreement State to perform survey meter calibrations.

OR

We will implement the model survey meter calibration program published in Appendix E in VAREG "Guidance for Uses of Sealed Sources."

OR

We will submit alternative calibration procedures for agency review. (Procedures are attached)

Item 9.3 Material Receipt And Accountability (Check one box)

We will conduct physical inventories at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license.

OR

We will submit a description of the frequency and procedures for ensuring that no sealed sources have been lost, stolen, or misplaced. (Procedures are attached)

Item 9.4 Occupational Dosimetry (Check one)

We will maintain, for inspection by the agency, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits in 12 VAC 5-481-640.

OR

We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor.

Item 9.5 Public Dose

No response is required, in this license application, however the licensee’s evaluation of public dose will be examined during an inspection.

Item 9.6 Operating And Emergency Procedures (Check box)

Operating and emergency procedures will be developed, implemented, and maintained, and will meet criteria in the section titled ‘Operating and Emergency Procedures’ in VAREG “Guidance for Uses of Sealed Sources.” (Procedures are attached)

Item 9.7 Leak Tests (Check one box)

Leak tests will be performed by an organization authorized by VDH, the NRC or another Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or another Agreement State to provide leak test kits to other licensees according to kit supplier’s instructions.

List name and license number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or another Agreement State)

Organization Name:

License Number:

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, NRC, or another Agreement State.

OR

We will perform leak testing and sample analysis and will follow the procedures in Appendix J of VAREG “Guidance for Uses of Sealed Sources.” (Procedures are attached)

OR

We will submit alternative procedures. (Procedures are attached)

Item 9.8 Maintenance and Repair (Check one box)

We will send the device to the manufacturer or other person authorized by VDH, the NRC or another Agreement State to perform maintenance or repair operations.

OR

We will implement and maintain procedures for maintenance of devices containing sealed sources according to each manufacturer’s recommendations and instructions.

OR

We will develop, implement and maintain procedures for maintenance of devices containing sealed sources. (Procedures are attached)

OR

We will only possess sealed sources not in devices. No maintenance or repair is required.

Item 9.9 Transportation

No response is needed during the license process; this issue will be reviewed during inspection.

Item 9.10 Waste Management (Check box)

We will transfer the sealed source or device containing the sealed source to the manufacturer or a specifically licensed recipient for disposal.

Item 9.11 Termination Of Activities (Check box)

We will notify the agency, in writing, within 60 days of the decision to permanently cease radioactive material use (12 VAC 5-481-500 D 1).

SPECIFIC LICENSE FEE

Item 10 License Fees (Refer to 12 VAC 5-490).

Category:

License Fee Enclosed

Yes No Amount Enclosed \$ _____

CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

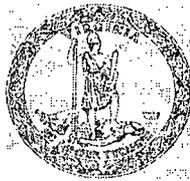
Item 11

I hereby certify that this application was prepared in conformance with 12 VAC 5-481 "Virginia Radiation Protection Regulations" and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant or Authorized Individual

Date signed

Print Name and Title of above signatory



APPLICATION FOR RADIOACTIVE MATERIAL LICENSE AUTHORIZING THE USE OF SELF-SHIELDED IRRADIATORS

The Virginia Department of Health (VDH) is requesting disclosure of information for the purpose of obtaining a radioactive material license. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions – Complete all items if this is an initial application or an application for renewal of a license. Refer to VAREG “Guidance for Self-Shielded Irradiators.” Use supplementary sheets where necessary. Retain one copy and submit original of the entire application to: Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

APPLICATION TYPE

Item 1 Type Of Application (Check one box)

New License Renewal License Number _____

CONTACT INFORMATION

Item 2 Name And Mailing Address Of Applicant:

Item 3 Person To Contact Regarding Application:

Applicant's Telephone Number (Include area code):

Contact's Telephone Number (Include area code):

LOCATION OF RADIOACTIVE MATERIAL

Item 4 Address(es) Where Licensed Material Will Be Used or Possessed (Do not use Post Office Box):

Address	Telephone Number (Include area code)
Address	Telephone Number (Include area code)
Address	Telephone Number (Include area code)

RADIATION SAFETY OFFICER

Item 5. Radiation Safety Officer (RSO) (Check one box and attach evidence of training and experience)

Name: _____ Telephone Number (Include area code): _____

Before obtaining radioactive material, the proposed RSO will have successfully completed training as described in Appendix G of VAREG ‘Guidance For Self-Shielded Irradiators’. Before being named as the RSO, future RSOs will have successfully completed training as described in Appendix G of VAREG ‘Guidance For Self-Shielded Irradiators’

OR

Alternative information demonstrating that the proposed RSO is qualified by training and experience is attached. Before being named as the RSO, future RSOs will have successfully completed training as described in Appendix G of VAREG ‘Guidance For Self-Shielded Irradiators’.

AUTHORIZED USERS**Item 6 Authorized Users** (Check one box)

Before using radioactive material, authorized users will have received training as described in Appendix G in VAREG 'Guidance for Self-Shielded Irradiators.'

OR

A description of the training and experience for proposed authorized users is attached.

RADIOACTIVE MATERIAL**Item 7 Radioactive Material** (Attach additional pages if necessary)

ELEMENT AND MASS NUMBER

 Cobalt-60 Strontium-90 Cesium-137 Other Isotope (please specify):

CHEMICAL AND PHYSICAL FORM

SEALED SOURCE

SEALED SOURCE MANUFACTURER OR DISTRIBUTOR AND MODEL NUMBER:

DEVICE MANUFACTURER OR DISTRIBUTOR AND MODEL NUMBER:

MAXIMUM QUANTITY (Not to exceed either the maximum activity per source or device as specified in the Sealed Source and Device Registration Certificate)

INTENDED USE

FACILITIES AND EQUIPMENT**Item 8 Facilities And Equipment** (Check all that apply)

Diagrams of radioactive material area(s) of use are attached.

AND EITHER

We will ensure that each area where a self-shielded irradiator is located corresponds to the 'Conditions of Normal Use' and 'Limitations and/or Other Considerations of Use' on the applicable irradiator's Sealed Source and Device Registration Certificate; the floor beneath the self-shielded irradiator is secured to prevent unauthorized access or removal; and each area where a self-shielded irradiator is located is equipped with an automatically operated fire detection and control system (sprinkler, chemical, or gas) or the location of the area and other controls ensure a low-level radiation risk attributable to fires.

OR

We will submit alternative information; be sure to include justification for placing an irradiator in an area that does not correspond to the 'Conditions of Normal Use' and the 'Limitations and/or Other Considerations of Use.'

RADIATION SAFETY PROGRAM**Item 9 Radiation Safety Program****Item 9.1 Audit Program**

The applicant is not required to, and should not, submit its audit program to the agency for review. This matter will be examined during inspection.

Item 9.2 Radiation Monitoring Instruments (Check one box)

- We will use instruments that meet the radiation monitoring instrument specifications published in Appendix K of VAREG 'Guidance for Self-Shielded Irradiators'. Additionally, each survey meter will have been calibrated by the manufacturer or other person authorized by VDH, the NRC or another Agreement State to perform survey meter calibrations no more than 12 months before the date the meter is used.

OR

- We will use instruments that meet the radiation monitoring instrument specifications published in Appendix K of VAREG 'Guidance for Self-Shielded Irradiators'. Additionally, we will implement the model survey meter calibration program published in Appendix K of VAREG 'Guidance for Self-Shielded Irradiators' and we ensure that each survey meter will have been calibrated no more than 12 months before the date the meter is used.

OR

- We will have access to survey equipment and/or procedures for ensuring that interlocks function, as required, to return moving self-shielded irradiator sources to the shielded position and/or determining source shielding integrity after an incident involving the self-shielded irradiator.

Item 9.3 Material Receipt And Accountability (Check box)

- Physical inventories will be conducted at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license.

Item 9.4 Occupational Dose (Check one box)

- We will maintain, for inspection by the agency, documentation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10 percent of the allowable limits in 12 VAC 5-481-640.

OR

- We will provide dosimetry processed and evaluated by a NVLAP-approved processor that is exchanged at a frequency recommended by the processor.

Item 9.5 Public Dose

No response is required, in this license application, however the licensee's evaluation of public dose will be examined during an inspection.

Item 9.6 Operating And Emergency Procedures (Check one box)

- We will develop, implement, maintain and distribute operating procedures that will meet the Criteria in the section titled 'Operating and Emergency Procedures' in VAREG 'Guidance for Self-Shielded Irradiators'. (Procedures are attached)

OR

- We will submit alternative procedures. (Procedures are attached)

Item 9.7 Leak Tests (Check one box)

- Leak tests will be performed by an organization authorized by VDH, the NRC or another Agreement State to provide leak testing services to other licensees; or by using a leak test kit supplied by an organization licensed by VDH, the NRC or another Agreement State to provide leak test kits to other licensees according to kit supplier's instructions.

List Name and License number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or another Agreement State)

Organization Name: _____

License Number: _____

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, NRC, or another Agreement State.

OR

- We will perform leak testing and sample analysis and will follow the model procedures in Appendix P of VAREG 'Guidance for Self-Shielded Irradiators'. (Procedures are attached)

OR

- We will submit alternative procedures. (Procedures are attached)

Item 9.8 Maintenance (Check one box for Routine Cleaning and Lubrication and one for Non-Routine Maintenance)

ROUTINE CLEANING AND LUBRICATION:

We will implement and maintain procedures for routine maintenance of our self-shielded irradiators according to each manufacturer's (or distributor's) written recommendations and instructions.

OR

Alternative procedures are attached.

NON-ROUTINE MAINTENANCE:

We will have the self-shielded irradiator manufacturer (or distributor) or other person authorized by VDH, the NRC or another Agreement State perform the non-routine maintenance.

OR

We will provide procedures that address the information listed in Appendix I of VAREG 'Guidance for Self-Shielded Irradiators' supporting a request for authorization to perform this work. (Procedures attached)

Item 9.9 Transportation (Check one box)

We choose to transfer possession of radioactive material to an irradiator manufacturer, distributor or service licensee with a VDH, NRC or another Agreement State license who then acts as the shipper.

OR

Before offering a Type B package for shipment we will be registered with the NRC as user of the package and obtain VDH approval of our QA program.

DISPOSAL, TRANSFER AND LICENSE TERMINATION

Item 10 Disposal, Transfer and License Termination

Item 10.1 Disposal And Transfer (Check Box)

We will return the source to the manufacturer for disposal or transfer the device to a specific licensee authorized to receive radioactive material.

Item 10.2 Termination Of Activities (Check box)

We will notify the agency, in writing, within 30 days of the decision to permanently cease radioactive material use per **12 VAC 5-481-500 D**.

SPECIFIC LICENSE FEE

Item 11 License Fees (Refer to **12 VAC 5-490**.)

Category:

Application fee enclosed (for new applications):

Yes No Amount Enclosed:

CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

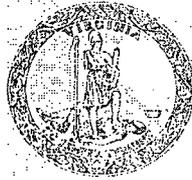
Item 12

I hereby certify that this application was prepared in conformance with **12 VAC 5-481**, 'Virginia Radiation Protection Regulations' and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant Or Authorized Individual

Date signed:

Print Name and Title of above signatory



APPLICATION FOR A RADIOACTIVE MATERIAL LICENSE AUTHORIZING THE USE OF MATERIAL IN WELL LOGGING, TRACER, AND FIELD FLOOD STUDY

The Virginia Department of Health (VDH) is requesting disclosure of all information for the purpose of obtaining a radioactive material license. Failure to provide any information may result in denial or delay of a radioactive material license.

Instructions – Complete all items if this is an initial application or an application for renewal of a license. Refer to VAREG ‘Guidance for Well Logging, Tracer and Field Flood Study’. Use supplementary sheets where necessary. Retain one copy and submit original of the entire application to: Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

APPLICATION TYPE

Item 1 Type Of Application (Check one box)

- New License Renewal License Number

CONTACT INFORMATION

Item 2 Name and Mailing Address Of Applicant:

Item 3 Person To Contact Regarding Application:

Applicant's Telephone Number (Include area code):

() - -

Contact's Telephone Number (Include area code):

() - -

LOCATION OF RADIOACTIVE MATERIAL

Item 4 Location of Radioactive Material (Do not use Post Office Box):

(Attach additional pages if necessary)

<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored	Address:	Telephone Number (Include area code): () - -
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored	Address:	Telephone Number (Include area code): () - -
<input type="checkbox"/> Used <input type="checkbox"/> Stored <input type="checkbox"/> Used and Stored	Address:	Telephone Number (Include area code): () - -

Are devices going to be used and/or stored at field stations? Yes No

Are devices going to be used and/or stored at temporary jobsites?: Yes No

If yes, check the following boxes:

- We will perform and maintain documentation of radiation surveys to ensure that radiation levels are less than 2 mR in any one hour and 100 mR/yr at all temporary job site storage locations.
- We will store the device at the temporary job site in a locked room, trailer or other secure location to prevent unauthorized removal of the device.
- We will minimize exposures for occupational and non-occupational workers when selecting storage location.
- We will limit storage at a temporary job site to 180 days per calendar year.

RADIATION SAFETY OFFICER

Item 5 Radiation Safety Officer (RSO) (Check all that apply)

- The name of the proposed RSO and other potential designees who will be responsible for ensuring that the licensee's radiation safety program is implemented in accordance with approved procedures.

NAME: TELEPHONE NUMBER
(Include area code): () - - -

AND

- We will demonstrate that the RSO has sufficient independence and direct communication with responsible management officials by providing a copy of an organizational chart by position and will confirm that the RSO has day-to-day oversight of the radiation safety activities.

AND EITHER

- We have included documentation showing the RSO's qualifications and experience.

OR

- We will provide alternative information demonstrating that the proposed RSO is qualified by training and experience (e. g., listed by name as an authorized user or the RSO on an VDH, NRC, or another Agreement State license that requires a radiation safety program of comparable size and scope) documentation to show that the RSO has obtained formal training in the establishment and maintenance of a radiation protection program.

TRAINING FOR LOGGING SUPERVISORS AND LOGGING ASSISTANTS

Item 6 Training For Logging Supervisors, Logging Assistants, and Tracer/Field Flood Study Users (Check box and attach requested information)

- We will submit an outline of the training to be given to prospective logging supervisors and logging assistants and have enclosed our procedures training given to experienced logging supervisors. We have also submitted a typical examination given, the correct answers to the questions and the passing grade.

AND

- We have included the qualifications of our instructors and their experience with well logging activities or have included the course title, name, course outline (if available), address and telephone number of the company who will provide training.

AND

- We have submitted a description of the field examination given to prospective logging supervisors and assistants.

AND

- We have submitted an description of our program including the annual refresher training including the topics and how they will be covered and the inspection of each logging supervisor and logging assistants job performance, as described in 12 VAC 5-481-3150 A.
-

RADIOACTIVE MATERIAL

Item 7 Radioactive Material (Attach additional pages if necessary)

Include sealed sources activity greater than 3.7 MBq (100 µCi)

Element and mass number	Sealed source manufacturer and model number
Maximum activity per source	If not listed on SSD certification, authorizing license number for source
Source changer manufacturer and model Number	Intended Use

Are unsealed tracer materials used? Yes (complete below information) No

Element name and mass number	Chemical/physical form
Maximum activity per tracer material	If volatile, anticipated rate of volatility or dispersion
Maximum amount per study by physical/chemical form	Intended Use

Are energy compensation sources used? Yes (complete below information) No

Element name and mass number	Manufacturer's name and model number
------------------------------	--------------------------------------

Intended Use:

RADIATION SAFETY PROGRAM

Item 10 Radiation Safety Program (Check box)

- We have included our radiation safety program for agency review.

Item 10.1 Well Owner/Operator Agreement

- We will obtain a written agreement prior to commencement of operating any well logging operation with a sealed source as specified in 12 VAC 5-481-3160.

Item 10.2 Radiation Safety Audit Program

The applicant is not required to, and should not, submit its audit program to the agency for review during the licensing phase. This matter will be examined during an inspection.

Item 10.3 Termination of Activities (Check box)

- We will notify VDH, in writing, within 60 days of the decision to permanently cease radioactive material use (12 VAC 5-481-500).

Item 10.4 Radiation Monitoring Instruments (Check all boxes that apply)

- We will possess and use radiation survey meter(s) that meets the Criteria in the section titled 'Radiation Monitoring Instruments' in VAREG 'Guidance for Well Logging, Tracer, and Field Flood Studies'. We reserve the right to upgrade our survey instruments as necessary.

AND EITHER

- If calibration is performed by a person or firm outside the applicant's organization, the calibration will be performed by a VDH, NRC or another Agreement State licensee specifically authorized to perform instrument calibration.

OR

- We will follow the survey meter calibration procedures in accordance with Appendix N in VAREG 'Guidance for Well Logging, Tracer, and Field Flood Study'.

OR

- We will submit alternate procedures. (Procedures are attached)

Note: Identify the qualifications of the individuals who will perform the calibrations if performed by the applicant.

Item 10.5 Material Receipt And Accountability (Check box)

- Semi-annual physical inventories will be conducted of all licensed material, including byproduct, tracer materials, and depleted uranium and the information contained in the discussion section titled 'Material Receipt and Accountability' in VAREG 'Guidance for Well Logging, Tracer, and Field Flood Studies' will be documented.
-

Item 10.6 Leak Tests (Check one box)

- Leak tests will be performed by an organization authorized by VDH, the NRC or another Agreement State to provide leak testing services to other licensees; or by the licensee using a leak test kit supplied by an organization licensed by VDH, the NRC or another Agreement State to provide leak test kits to other licensees according to kit suppliers' instructions.

List the name and license number of organization authorized to perform or analyze leak test (Specify whether VDH, NRC, or another Agreement State):

Organization Name	License Number
	Issuing Entity

Note: An alternate organization may be used to perform or analyze leak test, without amending the license, provided the organization is specifically authorized by VDH, the NRC or another Agreement State.

OR

- We will perform our own leak testing and sample analysis. We will follow the procedures in Appendix R of VAREG 'Guidance for Well Logging, Tracer, and Field Flood Study'.

OR

- We will submit alternative procedures. (Procedures are attached)

Item 10.7 Occupational Dosimetry (Check all boxes that apply)

- We will provide required dosimetry (film badge, TLD) that will be processed and evaluated by a NVLAP-approved processor that is exchanged monthly or quarterly, as appropriate, and worn by well logging personnel.

AND/OR

- We will provide a bioassay program when using unsealed tracer materials.

OR

- We will provide a commitment that no individual will use more than 50 millicuries of iodine-131 at any one time or in any 5-day period at field stations or temporary job sites.

Note: If intend to use an excess of amounts described or request permission to repackage or process iodine-131 tracer materials at field stations, it is necessary to describe in detail the bioassay program

OR

- We will contract an vendor for bioassay services who is licensed or otherwise authorized by VDH, NRC, or another Agreement State to provide required bioassay services.

Item 10.8 Public Dose

No response is required, in this license application, however the licensee's evaluation of public dose will be examined during an inspection.

Item 10.9 Maintenance

Item 10.9.1 Daily Maintenance (Check both boxes)

- We have included procedures for conducting daily visual inspection.

OR

- Visual daily inspection will be conducted and records maintained in accordance with the criteria listed in 'Daily Maintenance' of the VAREG 'Guidance for Well Logging, Tracer, and Field Flood Study' to ensure that well logging equipment is in good working condition and is labeled as required.

Item 10.9.2 Semi-Annual Visual Inspection and Routine Maintenance (Check both boxes)

- We have included procedures for semi annual visual inspection and routine maintenance of source holders, logging tools, injection tools, source handling tools, storage containers, transport containers, and uranium sinker bars to ensure that the labeling required by 12 VAC 5-481-3250 is legible and that no physical damage is visible.

AND

- Semiannual inspections and routine maintenance will be conducted and records maintained for source holders, logging tools, injection tools, source handling tools, storage containers, transport containers, and uranium sinker bars in accordance with the criteria in 'Semi-Annual Visual Inspection and Routine Maintenance' of VAREG 'Guidance for Well Logging, Tracer, Field Flood Study' to ensure that well logging equipment is in good working condition with no physical damage evident and that required labeling is present.

Item 10.9.3 Maintenance Requiring Special Authorization (Check both boxes)

Prohibited activities described in 'Maintenance Requiring Special Authorization' of VAREG 'Guidance for Well Logging, Tracer, Field Flood Study' will not be conducted unless approved by the agency.

OR

Submit detailed procedures of each different tasks (including source removal procedures) for any prohibited activities, including radiation safety precautions that individuals will be expected to follow when performing these tasks and the minimum qualifications of these individuals.

Item 10.10 Operating and Emergency Procedures

Operating and emergency procedures or an outline or summary as described in 12 VAC 5-481-3150 A 3 have been attached for agency review.

Item 10.11 Transportation

No response is needed from applicants during licensing phase. This matter will be examined during an inspection.

WELL LOGGING, TRACER, AND FIELD FLOOD STUDY OPERATIONS

Item 11. Well Logging, Tracer, and Field Flood Study Operations

Item 11.1 Drill-to-Stop Large Sealed Sources (Check box)

We have submitted procedures for conducting Drill-to-Stop well logging operations or an outline or summary that addresses important radiation safety aspects in the Operating and Emergency procedures.

Item 11.2 Measurement While Drilling, Logging While Drill (Check box)

We have submitted procedures for conducting Measurement While Drilling, Logging While Drilling well logging operations or an outline or summary that addresses important radiation safety aspects in the Operating and Emergency procedures.

Item 11.3 Energy Compensation Sources (Check box)

We have submitted operating and emergency procedures for using and handling energy compensation sources.

OR

We have submitted an outline or summary of the operating and emergency procedures for using and handling energy compensation sources including instructions for leak testing energy compensation sources, if required, at intervals not to exceed 3 years, instructions for conducting physical inventories at least every 6 months, maintaining records of inventories required by 12 VAC 5-481-3220 and records of use for energy compensation sources.

OR

We have submitted alternative procedures for agency review.

OR

Energy compensation sources will not be used

Item 11.4 Use of Sealed Sources or Neutron Generators in Fresh Water Aquifers (Check box)

We will not conduct this prohibited activity.

OR

We are requesting authorization for this prohibited activity and have included the required procedures as stated in 'Use of Sealed Sources or Neutron Generators in Fresh Water Aquifers' of VAREG, 'Guidance for Well Logging, Tracer, and Field Flood Study'.

Item 11.5 Tracer Studies in Single Well Applications (Check box)

No response is required for this section provided that the elements in the 'Tracer Studies in Single Well Applications' of VAREG 'Guidance for Well Logging, Tracer, and Field Flood Study' are contained in other sections.

Item 11.6 Field Flood and Secondary Recovery Applications (Tracer Studies in Multiple Wells) (Check box)

Field flood studies using tracer materials will not be conducted unless authorized specifically by license conditions.

OR

We are requesting authorization to conduct field flood studies in the enhanced recovery of oil and gas wells using the information provided in Appendix F of the VAREG 'Guidance for Well Logging, Tracer, and Field Flood Study'.

Item 11.7 Tracer Studies in Fresh Water Aquifers (Check box)

We will not knowingly inject tracer material into a fresh water aquifer.

OR

We are requesting authorization to inject licensed radioactive materials into a fresh water aquifer and are providing the reason(s) for this study and procedures to protect the worker(s) and the public.

Note: Tracer and field flood studies require an environmental report.

Item 11.8 Radioactive Collar and Subsidence or Depth Control Markers (Check box)

We will only use radioactive markers where each individual marker contains only quantities of licensed material not exceeding the quantities identified in 12 VAC 5-481-3730.

OR

We have submitted procedures for using radioactive markers that in excess of quantities listed in 12 VAC 5-481-3730.

Item 11.9 Neutron Accelerators using Licensed Material (Check box)

We will not use neutron generators (accelerators) in our well logging operations.

OR

We will use neutron generators (accelerators) in accordance with the criteria in 'Neutron Accelerators using Licensed Material' of VAREG 'Guidance for Well Logging, Tracer, and Field Flood Study'.

Item 11.10 Depleted Uranium Sinker Bars (Check box)

Depleted uranium sinker bars will be obtained under the provisions of a general license (12 VAC 5-481-420 C) and the appropriate VDH form will be filed, as required.

OR

Depleted uranium sinker bars will be possessed and inspected as specified in 12 VAC 5-481-3260.

AND

Uranium sinker bars will be possessed and inspected as specified in 12 VAC 5-481-3260

AND

We request _____ kilograms of material.

OR

Depleted uranium sinker bars will not be used.

WASTE MANAGEMENT

Item 12 Waste Management

We will use Appendix T of VAREG 'Guidance for Well Logging, Tracer, and Field Flood Study'

OR

We will use Decay-In-Storage model waste procedure in Appendix T of VAREG, 'Guidance for Well Logging, Tracer, and Field Flood Study'

AND/OR

We will use Disposal of Liquids Into Sanitary Sewage (12 VAC 5-481-930) model waste procedure in Appendix T of VAREG, 'Guidance for Well Logging, Tracer, and Field Flood Study'

OR

We have attached our procedures for waste collection, storage and disposal by any of the authorized methods and request authorization for the methods described.

SPECIFIC LICENSE FEE

Item 13 License Fees (12 VAC 5-490).

Category:	Application Fee Enclosed (For new applications):
	<input type="checkbox"/> Yes <input type="checkbox"/> No Amount Enclosed \$

CERTIFICATION (To be signed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 14

I hereby certify that this application was prepared in conformance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations' and that all information contained herein, including any supplements attached hereto, is true and correct to the best of my knowledge and belief.

SIGNATURE - Applicant Or Authorized Individual	Date signed
---	-------------

Print Name and Title of above signatory



Manual Brachytherapy Inspection -Addendum
These modalities may be part of a licensee's Oncology program
12 VAC 5-481-2010; 12 VAC 5-481-1670 & 12 VAC 5-481-110

License No.:

Date of Inspection:

Priority:

1. Liquid Brachytherapy, GliSite Therapy

Yes No N/A

Inspection Site Address

Location authorized on license?

Yes No NA

Use authorized on license?

Yes No NA

Manufacturer:

List the authorized users. Are they approved on the license or approved by the RSC?

[L/C]

Yes No

Comment [MSOffice1]: Should this be RSC? Beth

The AU has specific vendor training in the use of the Proxima therapeutics' GliSite RTS.

[L/C]

Yes No

Written directive:

(1) Prior to implantation the written directive includes the treatment site, the radionuclide (including the chemical and physical form), and dose. [12 VAC 5-481-1720, L/C] Yes No

(2) After implantation but prior to completion of the procedure the written directive includes the radionuclide (including the chemical and physical form), the treatment site, and the total dose.

[12 VAC 5-481-1720, L/C]

Yes No

Procedures are in place specifying how to confirm that the balloon does not leak prior to injection of the radionuclide and implantation in the patient or human research subject. [L/C] Yes No

Has the licensee had a leaking source?

Yes No

If yes, was the agency notified within 5 working days? [L/C]

Yes No

The licensee labels syringes containing I-125 Iotrex™ and syringe radiation shield with the radionuclide and therapeutic procedure (i.e., I-125 Iotrex™ for brain brachytherapy). Yes No

Have any medical events occurred associated the liquid brachytherapy program? Yes No
Example: Mislabeling syringes, color code syringe/vial errors, and picking up the wrong syringe, etc.

The licensee acquired a SSD certificate prior to medical use of the liquid source. Yes No

Is the licensee following the SSD limitations/physical conditions of use? Yes No

If no, was a safety evaluation performed by the broad scope medical use licensee that addressed the conditions of use?

Note: A safety evaluation must be performed by a broad-scope medical use licensee if the physical conditions of use, as stated in the SSD certificate, are exceeded.

[L/C] Yes No

Did the licensee perform a survey after implanting the source? [12 VAC 5-481-2010] Yes No

Did the licensee perform a survey after removing the source? [12 VAC 5-481-2010] Yes No

2. Microsphere Brachytherapy Sources and Devices Yes No N/A

Inspection Site Address

Location authorized on license? Yes No NA

Use authorized on license? Yes No NA

Note: Y-90 microspheres are manual brachytherapy sources used for permanent implantation therapy, i.e. TheraSphere and SIRSphere.

Manufacturer:

List the authorized users. Are they approved on the license or approved by the RSC?
[L/C] Yes No

Comment [MSOffice2]: Should this be RSC? Beth

The AU has specific vendor training in the use of the microspheres and the microsphere delivery system.
[L/C] Yes No

All requirements for brachytherapy sources and manual brachytherapy use are being met.
[12 VAC 5-481-2010] Yes No

Note: Leak tests are not required because the activity per microsphere (the sealed source) meets the criteria in
12 VAC 5-481-1840

Written directive:

(1) Prior to implantation the written directive includes the treatment site, the radionuclide including the chemical and physical form (i.e., Y-90 microspheres), and dose.

[12 VAC 5-481-1720, L/C] Yes No

Note: Y-90 microspheres, "prescribed dose" in the written directive means the total dose.

(2) After implantation but prior to completion of the procedure, the written directive includes the radionuclide (including the chemical and physical form), the treatment site, and the total dose.

[12 VAC 5-481-1720, L/C] Yes No

(3) Is the licensee following the written directive procedures that describe how to quantify the total dose to the treatment site as well as the total dose to other sites upon completion of the administration?

[12 VAC 5-481-1730, L/C] Yes No

Are quarterly inventories of sealed sources and brachytherapy sources performed? Yes No

Do they include the individual aggregates of the microspheres identifying the radioisotope, the container of the aggregate, the total activity of the aggregate, and the container location?

[12 VAC 5-481-2010, L/C] Yes No

Are procedures in place to ensure that the bremsstrahlung emissions from each patient permits release?

Note: TEDE < 5 mSv (500 mrem) to others and TEDE < 1 mSv (100 mrem) to breast-feeding infant or child.

[12 VAC 5-481-1870] Yes No

Y-90 microspheres placed in vials, syringes, or radiation shields are labeled by the manufacturer or by the licensee.

Yes No

h. The administration syringes and syringe radiation shields are labeled with the radioisotope, form, and therapeutic procedure (i.e., Y-90 microspheres, brachytherapy).

Yes No

The required SSD certificate for the Y-90 microsphere delivery system is available for review.

Yes No

Is the licensee following the SSD limitations/physical conditions of use? Yes No

If no, was a safety evaluation performed by the broad scope medical use licensee that addressed the conditions of use?
Note: A safety evaluation must be performed by a broad-scope medical use licensee if the physical conditions of use, as stated in the SSD certificate, are exceeded.
[L/C] Yes No

Note: The U.S. Food and Drug Administration currently approves the MDS NORDION Y-90 TheraSphere® microspheres under the provisions of a "Humanitarian Device Exemption" (HDE No H9800006). An Institutional Review Board review and approval is required before a humanitarian use device is used at a facility, as well as, continuing review of its use

3. Intervascular Brachytherapy (IVB)

Inspection Site Address

Location authorized on license? Yes No NA

Use authorized on license? Yes No NA

Manufacturer:

Cordis Checkmate™ IVB System Yes No N/A

List the Authorized Users and Authorized Medical Physicist. Are they approved on the license or approved by the RSC?
[L/C] Yes No

Have the Authorized User, Interventional Cardiologist/Physician, and Authorized Medical Physicist received the vendor training for use of the device? Yes No

Does the Authorized User consult with the interventional Cardiologist/Physician and Authorized Medical Physicist (AMP) prior to initiating treatment? Yes No

Are all procedures are conducted in the physical presence of the Authorized User or the AMP?
[L/C] Yes No

Are written directives are signed and dated prior to all treatments, specifying treatment site, the radionuclide, and dose?
[12 VAC 5-481-1720] Yes No

The AMP performs independent measurement of the source output prior to the first patient treatment using a dosimetry system that meets the requirements of 12 VAC 5-481-2040. Yes No

Has the licensee developed, implemented, and maintained written emergency procedures for both stuck and detached

Comment [MSOffice3]: Should this be RSC? Beth

sources; including the provisions for appropriate emergency response equipment and appropriate surgical procedures?
[L/C] Yes No

Does the licensee survey the patient and the IVB treatment catheter immediately following source retraction or removal confirming complete retraction of the source(s)? [12 VAC 5-481-2010] Yes No

Are source trains removed from use after the "use by" date? [L/C] Yes No

Does the licensee perform "source stepping"? [L/C] Yes No

If yes, does the licensee have written procedures for "source stepping"? [L/C] Yes No

Is the licensee properly using portable shields? [L/C] Yes No

No single seed exceeds 35 millicuries, in a three-ribbon set containing 6, 10, or 14 seeds per ribbon or total of 1.1 curies per set. [L/C] Yes No

Manufacturer:

Novoste Beta-Cath™ IVB System Yes No N/A

Is the licensee authorized for Strontium-90 sealed sources, 5mCi per source and a total of 800mCi?
[L/C] Yes No

Note: The exposure rate from this system is greater than 1,200 rads/hr.

List the Authorized Users and Authorized Medical Physicist. Are they approved on the license or approved by the RSC?
[L/C] Yes No

Comment [MSOffice4]: Should this be RSC? Beth

Have the Authorized User, Interventional Cardiologist/Physician, and Authorized Medical Physicist received the vendor training for use of the device? Yes No

Does the Authorized User consult with the Interventional Cardiologist/Physician and Authorized Medical Physicist (AMP) prior to initiating treatment? Yes No

Are all procedures are conducted in the physical presence of the Authorized User or the AMP?
[L/C] Yes No

Are written directives are signed and dated prior to all treatments, specifying treatment site, the radionuclide, and dose?

[12 VAC 5-481-1720]

Yes No

Does the licensee perform "source stepping"? [L/C]

Yes No

If yes, does the licensee have written procedures for "source stepping"? [L/C]

Yes No

Does the licensee survey the patient and the IVB treatment catheter immediately following source retraction or removal confirming complete retraction of the source(s)? [12 VAC 5-481-2010]

Yes No

Is an introducer sheath used, unless contraindicated? [L/C]

Yes No

Is a dual syringe system used?

[L/C]

Yes No

Has the licensee developed, implemented, and maintained written emergency procedures for both stuck and detached sources; including the provisions for appropriate emergency response equipment and appropriate surgical procedures? [L/C]

Yes No

Is the source storage container locked in a secured location?

Yes No

Note: Shielding calculations are not necessary for areas outside the treatment room and device storage areas, because Sr-90 is a pure beta emitter.

Has the AMP performed an independent measurement of source output prior to first treatment?

[L/C]

Yes No

Where the independent measurements performed with a dosimetry system that meets the requirements of 12 VAC 5-481-2040?

[L/C]

Yes No

Is the IVB system inspected and serviced at intervals recommended by the manufacturer?

[L/C]

Yes No

Is maintenance and repair performed only by the manufacturer or persons specifically licensed by VDH, NRC or an Agreement State?

[L/C]

Yes No

Manufacturer:

Guidant Galileo™ IVB System

Yes No N/A

License authorization for 600 mCi per source assembly with a total of two-source assembly.

[L/C]

Yes No

Note: i.e. Guidant Corporation VI Model GALILEO™ intravascular brachytherapy high dose rate afterloader devices

for intravascular brachytherapy.”

List the Authorized Users and Authorized Medical Physicist. Are they approved on the license or approved by the RSC?
[L/C] Yes No

Comment [MSOffice5]: Should this be RSC? Beth

Have the Authorized User, Interventional Cardiologist/Physician, and Authorized Medical Physicist received the vendor training for use of the device? Yes No

Does the Authorized User consult with the Interventional Cardiologist/Physician and Authorized Medical Physicist (AMP) prior to initiating treatment? Yes No

Are all procedures are conducted in the physical presence of the Authorized User or the AMP?
[L/C] Yes No

Are written directives are signed and dated prior to all treatments, specifying treatment site, the radionuclide, and dose?
[12 VAC 5-481-1720] Yes No

Does the licensee perform “source stepping” or “pullback” procedures? [L/C] Yes No

If yes, does the licensee have written procedures? [L/C] Yes No

h. Does the licensee survey the patient and the IVB treatment catheter immediately following source retraction or removal confirming complete retraction of the source(s)? [12 VAC 5-481-2010] Yes No

Has the licensee developed, implemented, and maintained written emergency procedures for both stuck and detached sources; including the provisions for appropriate emergency response equipment and appropriate surgical procedures?
[L/C] Yes No

Are the delivery device and source assembly secured in locked storage when not in use?
[L/C] Yes No

Does the licensee have a method for key control for the console? [L/C] Yes No

Note: Shielding calculations are not necessary for areas outside the treatment room and device storage areas, because P-32 is a pure beta emitter.

Has the AMP performed an independent measurement of source output prior to first treatment?
[L/C] Yes No

Where the independent measurements performed with a dosimetry system that meets the requirements of
12 VAC 5-481-2040? [L/C] Yes No

Is the IVB system inspected and serviced at intervals recommended by the manufacturer?
[L/C] Yes No

The source assembly/cartridge are not used for more than 60 days or 650 cycles, whichever comes first, in accordance
with the manufacturer's guidance. [L/C] Yes No

Is maintenance and repair performed only by the manufacturer or persons specifically licensed by
VDH, NRC or an Agreement State? [L/C] Yes No

Are the following daily checks performed prior to each patient treatment? Yes No

- Console operational checks
- Indicator lamps
- Source status indicators
- Visual inspection of the integrity of the source centering catheter and connectors
- Accuracy of source positioning.

Are the following tests performed at each source exchange prior to patient treatment? Yes No

- Source uniformity via autoradiograph
- Source positioning accuracy within +/- 1mm
- Battery backup for emergency source retraction upon power failure
- Source transit time to meet manufacturer's specifications
- Timer accuracy and linearity to meet manufacturer's specifications



VIRGINIA DEPARTMENT OF HEALTH RADIOACTIVE MATERIALS PROGRAM

INDUSTRIAL RADIOGRAPHY FIELD INSPECTION REPORT

Some items addressed here may be addressed on other inspection forms.

Licensee and Inspector Information

Licensee:

License No:

Location (Authorized site):

Inspection Date:

NOTES (Include observations, description of interviews, etc.):

1. Personnel Observations

a. List individuals interviewed at temporary jobsites during the inspection.

Individual 1:

Individual 2:

Individual 3:

Individual 4:

b. Radiographer is accompanied by an additional radiographer or radiographer's assistant per 12 VAC 5-481-1300 A [Note: two man rule].

(1) The additional person is available to give immediate assistance.

(2) The additional person directly observes radiographic operations.

Yes No

Yes No

Yes No

c. Supervision of the radiographer's assistant includes the following per 12 VAC 5-481-1340:

(1) The radiographer is present where sources of radiation are being used.

(2) Radiographer is available to give immediate assistance if required.

(3) Radiographer directly observes radiographic operations.

Yes No

Yes No

Yes No

<p>d. Radiographer has a valid certification ID card per 12 VAC 5-481-1570 B.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>e. Individuals interviewed demonstrate adequate knowledge and understanding of the operating and emergency procedures. (Example questions: DRD off-scale, source stuck, etc...)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>f. Continuous direct surveillance of the operation to protect against unauthorized entry into a radiation area is controlled per 12 VAC 5-481-1370.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>g. Has this jobsite been utilized more than 180 days in a year? [12 VAC 5-481-1530 C] (Note: If yes the site must be listed on the license.)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

2. Personnel Monitoring

<p>a. The following monitoring devices are worn per 12 VAC 5-481-1350 A:</p> <p>(1) Direct reading dosimeter.</p> <p>(2) Alarming ratemeter.</p> <p>(3) Film badge, TLD or similar approved device.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. The direct reading dosimeter has a range from 0 to 200 mR per 12 VAC 5-481-1350 A 1.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>c. The direct reading dosimeter is read and recorded at the beginning and end of each shift per 12 VAC 5-481-1350 B.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>d. The alarming ratemeters meet the following criteria per 12 VAC 5-481-1350 G 1:</p> <p>(1) Checked to ensure alarm functions properly at start of each shift.</p> <p>(2) Audible and LED alarms function</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No

3. Materials and Equipment

a. List the sources:

No	Rec Date	MFG	Isotope	Model #	S/N	Activity (Ci)	Activity Date	Disp/Transfer Date
1								
2								
3								
4								

Note: Use additional supplementary inventory sheet if needed.
Request a copy of most recent inventory from licensee.
Match the source(s) number with the camera(s) number below.

b. List the cameras/source changers:

No	MFG	Model #	S/N	Notes
1				
2				
3				
4				

Note: Use additional supplementary inventory sheet if needed.
 Request a copy of most recent inventory from licensee.
 Match the camera(s) numbers with the source(s) above.

4. Radiographic Equipment Performance Requirements

<p>a. Each device has a visible label attached containing the following per 12 VAC 5-481-1210 B 1:</p> <ul style="list-style-type: none"> (1) Chemical symbol and mass number of radionuclide in the device. (2) Activity and date for last measurement of source activity. (3) Model or product code and serial number of the sealed source. (4) Name of the sealed source manufacturer. (5) Licensee's name, addresses and telephone number. (6) Radiation symbol and the words, "Caution Radioactive Material" [12 VAC 5-481-880]. <p>b. The radiographic exposure devices, source assemblies and associated equipment that allow the source to be moved out of the device meets the following requirements of 12 VAC 5-481-1210 C 2 & 6:</p> <ul style="list-style-type: none"> (1) The device must automatically secure the source assembly when it is cranked back into the fully shielded position within the device. (2) Guide tubes are used when moving the source out of the device. <p>c. Collimators are used in all portable radiographic operations per 12 VAC 5-481-1300 C. [Note: except when physically impossible]</p> <p>d. Has the licensee identified any equipment problems (i.e. daily guide tube safety checks) per 12 VAC 5-481-1270? If yes, has equipment been removed from service until repaired?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
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5. Storage Container Safety Requirements

<p>a. The exposure device has a lock or container has a lock per 12 VAC 5-481-1230 A.</p> <p>b. The storage container is locked except when in direct visual surveillance of radiographer or radiographer's assistant per 12 VAC 5-481-1230 B.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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6. Radiation Surveys

<p>a. Surveys are conducted on device and guide tube after each exposure when approaching the device to ensure the source has returned to its shielded position per 12 VAC 5-481-1360 2.</p> <p>b. Surveys are conducted on device(s) prior to placing the device in storage to ensure it is in the shielded position per 12 VAC 5-481-1360 3.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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7. Independent Survey Measurements by the VDH Inspector

<p>a. Independent confirmatory surveys performed.</p> <p>(1) Survey instrument used:</p> <p>(a) Mfg./Make:</p> <p>(b) Model #:</p> <p>(c) Serial #:</p> <p>(d) Last calibration date:</p> <p>(2) Licensee survey instrument(s):</p> <p>(a) Mfg./Make:</p> <p>(b) Model #:</p> <p>(c) Serial #:</p> <p>(d) Last calibration date:</p> <p>(3) Describe inspector instrument readings as compared to licensee instrument readings.</p> <p>(4) Highest radiation levels for following areas:</p> <p>(a) unrestricted area when exposed _____ (mR/hr). Note: including the floor/ceiling if applicable.</p> <p>(b) external surface of device when shielded _____ (mR/hr).</p> <p>(d) 1 meter from device when shielded _____ (mR/hr).</p> <p>(e) other locations surveyed:</p> <p>b. Radiation levels in all unrestricted areas less than 2 mR in any one hour, and resulting non-occupational personnel exposure less than 100 mR/yr per 12 VAC 5-481-720.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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8. Posting

<p>a. Are the following signs posted in each applicable area:</p> <p>(1) "Caution Radiation Area" (5 mrem in 1 hour @ 30 cm) [12 VAC 5-481-860] Note: Can be posted at the restricted area line (2 mrem/hr)</p> <p>(2) "Caution/Danger High Radiation Area" (100 mrem in 1 hour @ 30 cm) [12 VAC 5-481-860]</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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9. Documents and Records

<p>a. The following is available at the jobsite per 12 VAC 5-481-1520 B:</p> <ul style="list-style-type: none"> (1) License. (2) Copy of 12 VAC 5-481 Parts I, IV, V and X. (3) Utilization log. (4) Daily equipment check log. (5) Dosimeter reading log. (6) Operating and Emergency procedures. (7) Latest survey instrument calibration record. (8) Alarming ratemeter calibration. (9) Shipping paperwork, which includes: <ul style="list-style-type: none"> (a) Material description: <ul style="list-style-type: none"> 1. Description entered first or in a separate color. 2. "Radioactive Material" included. 3. Name of radionuclide. 4. Description of physical form. 5. Activity of radionuclide. 6. Category of label applied to package. 7. Transport index assigned to package. (b) Name of shipper. (c) Emergency response telephone number. (10) A copy of applicable state or NRC license when operating under reciprocity. 	<ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
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10. Transportation of Radioactive Materials

<p>a. Package/container is blocked and braced during transfer per 49 CFR 177.842.</p> <p>b. Vehicle is prominently labeled on both sides with licensee's name and city/town of main business office per 12 VAC 5-481-1290(E)?.</p> <p>c. Proper shipping name and identification number is marked on package per 49 CFR 172.301(a).</p> <p>d. Package is labeled properly per 49 CFR 172.403.</p> <p>e. Package is marked properly per 49 CFR 172.310(b) with shipping name, identification number and "Type B".</p> <p>f. For packages greater than 110 pounds the gross weight is marked on outside of package per 49 CFR 172.310(a).</p> <p>g. For shipments utilizing overpacks, the overpack is marked with the following per 49 CFR 173.25:</p> <ul style="list-style-type: none"> (1) Proper shipping name and identification number (2) A statement indicating that the inside (inner) package complies with specification markings (i.e. shipping name and number, "Type B", and gross weight as necessary) 	<ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
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h. For shipments utilizing overpacks, the overpack must bear the applicable label per **49 CFR 173.448**.

Yes No N/A

i. For packages shipped Yellow III, the vehicle is placarded per **49 CFR 172.500**.

j. The shipping paperwork is readily accessible during transportation.
[**49 CFR 177.81(e)**]

Yes No



VIRGINIA DEPARTMENT OF HEALTH
Radioactive Materials Program
Inspection Report



INDUSTRIAL RADIOGRAPHY OFFICE

Licensee and Inspector Information

License No.:	Date of Inspection:	Priority:
Type of Inspection:	Announced <input type="checkbox"/> Unannounced <input type="checkbox"/> Initial <input type="checkbox"/> Routine <input type="checkbox"/> Special <input type="checkbox"/>	Date of Last Inspection:

Licensee (name and address):

Inspection

Site Address:

Contact Person:

Contact Tel No.:

Summary of Findings and Actions

- No Violations Cited
 Violation(s) Issued
 Repeat Violations

Next Inspection Date: Normal Reduced Extended

**Justification for Change
in Inspection Frequency:**

Lead Inspector:

Sign Name _____ Date _____

Print Name _____

Accompanying Inspector:

Sign Name _____ Date _____

Print Name _____

Reviewed By:

Sign Name _____ Date _____

Print Name _____

Notes:

NOTES (Describe how performance based inspection was completed):**1. Checklists Used** Office Permanent Field**2. Amendments and Program Changes
(Review from last License renewal)**

a. Amendment #

b. Date:

c. Subject/Items.

3. Inspection History

a. Items of violations cited at last inspection.
 (1) Previous violation(s) properly corrected.
 If no, list those violations with an explanation.

 Yes No
 Yes No N/A

b. List previous recommendations:

4. Organization

a. List and identify all individuals in attendance at entrance meeting.

Individual 1:

Individual 2:

Individual 3:

Individual 4:

Additional:

b. Organizational structure meets requirements identified on license. **[L/C]** Yes Noc. Mailing address and authorized locations of use are as identified on license?
[L/C] Yes No

d. Briefly describe the licensed material program.
(# radiographers, offices, program structure, jobsites, etc.)

e. Radiation Safety Officer (RSO) performs the following duties under **12 VAC 5-481-1310 D.**

(1) Establishes and oversees operating, emergency and ALARA procedures.

Yes No

(2) Oversees and approves the training program.

Yes No

(3) Ensures radiation surveys and leak tests are performed.

Yes No

(4) Ensures personnel monitoring devices are calibrated and used properly, records are properly maintained, and timely notifications are made.

Yes No

(5) Ensures that operations are conducted safely.

Yes No

5. Management Oversight

a. Management supports ALARA per **12 VAC 5-481-630.**

Yes No

b. Management supports RSO efforts.

Yes No

c. Radiation protection annual audits performed per **12 VAC 5-481-630:**

Yes No

(1) Audits conducted by:

(2) Areas reviewed:

(3) Audit records maintained per **12 VAC 5-481-990.**

Yes No

(4) Self identified problems noted.

Yes No

(a) Corrective actions taken.

Yes No N/A

d. Performance Evaluation Factors (P.E.F.) reviewed include the following:

(1) Senior management involved with radiation safety program and RSO oversight.

Yes No

(2) RSO too busy with other assignments.

Yes No

(3) Sufficient staffing for licensee program.

Yes No

(4) Adequate audits being implemented.

Yes No

6. Training Program

- | | |
|---|--|
| <p>a. All authorized users approved in writing by the RSO. [L/C]
List authorized users:</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>b. Radiographers meet the following requirements of 12 VAC 5-481-1320 A & B:
(1) Received copies of Parts IV, V, X and XIII;
(2) Certified through a certification program.
Note: Radiographer shall carry a certification card.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>c. Radiographer's Assistants meet the following requirements of 12 VAC 5-481-1320 C:
(1) Received copies of Parts IV, V, X and XIII;
(2) Completed a written or oral examination;
(3) Received supervised operational training from the radiographer; and
(4) Completed an equipment practical examination.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>d. Performance observations of Radiographers and Radiographers' Assistants performed semi-annually per 12 VAC 5-481-1320 E 1.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>e. Annual refresher safety training given per 12 VAC 5-481-1320 D.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>f. Records of training, certifications, exams and observations for radiographers and radiographers assistants maintained for 3 years following creation per 12 VAC 5-481-1470.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>g. Annual training provided to all individuals/workers who are likely to receive an occupational radiation dose >100mR/yr and records maintained for 5 years per 12 VAC 5-481-2270.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>h. Was HAZMAT training given and records maintained per 49 CFR 172.704?
Note: Required only if transporting a Yellow-III label. Training is required for personnel who prepare, load, unload or transport.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |

7. Notifications and Reports

- | | |
|--|--|
| <p>a. Occupational overexposures reported to the agency since last inspection
Per 12 VAC 5-481-1110</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>b. Reports of leaking source(s) reported to the agency since last inspection
per 12 VAC 5-481-1250 D.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>c. Since last inspection, any theft, loss of licensed material or radiological incident occurred and agency department notified per 12 VAC 5-481-1090.
(1) If yes, describe the root cause and corrective actions taken for each incident.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |

d. Notifications to the agency for any of the following occurred per 12 VAC 5-481-1530 A:

- (1) Unintentional disconnection of the source assembly from the control cable.
- (2) Inability to retract the source assembly to its fully shielded position.
- (3) Failure of any component which is critical to safe operation of the device.

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A

8. Personnel Dosimetry

a. Direct reading dosimeters being checked annually for correct response to radiation, within ± 20 percent of true radiation exposure per 12 VAC 5-481-1350 C.

Yes No

b. Alarming ratemeters calibrated annually, alarm set at 500 mR/hr and accurate within $\pm 20\%$, and records maintained for 3 years per 12 VAC 5-481-1350 G 2 & 4.

Yes No

c. Each film badge, TLD or similar approved device is assigned to and worn by only one individual per 12 VAC 5-481-1350 A 2.

Yes No

9. Monitoring Records

a. Review of personnel monitoring records, from

To

- | | | | | |
|--------------|----|--------------------------------|----------------------------------|-------------------------------|
| (1) Max. DDE | mR | <input type="checkbox"/> Month | <input type="checkbox"/> Quarter | <input type="checkbox"/> Year |
| (2) Max. SDE | mR | <input type="checkbox"/> Month | <input type="checkbox"/> Quarter | <input type="checkbox"/> Year |

b. Workers exceeded occupational dose regulatory limits of 12 VAC 5-481-640.

Yes No

c. Permanent dosimetry processor is NVLAP certified per 12 VAC 5-481-750. List Film / TLD Supplier?

Yes No

d. Monitoring reports reviewed by Licensee: [L/C]
 Monthly Quarterly Annually

e. Film badges, TLD's, or similar approved devices submitted for processing monthly per 12 VAC 5-481-1350 A 3.

- (1) If no, circumstances are documented and available for review.

Yes No
 Yes No N/A

f. Personnel monitoring records are maintained as follows per 12 VAC 5-481-1490:

- (1) Direct reading dosimeters – 3 years
- (2) Film badge, TLD, or similar approved device – until termination

Yes No
 Yes No

g. Licensee provides all workers a written report of their annual radiation exposure per 12 VAC 5-481-1490.

Yes No

h. Workers exposure records provided within 30 days upon request of employee after termination of employment per 12 VAC 5-481-2280 E.

Yes No

10. Leak Test

<p>a. Leak tests performed at 6 months intervals per 12 VAC 5-481-1250 C 1. (1) Test kit model number: Kit Mfg: (2) Did inspector observe a user taking a sample?</p> <p>b. Licensee performs leak test analysis. [L/C]</p> <p>c. Leak tests are analyzed by a facility authorized by VDH, the NRC or an Agreement State.</p> <p>d. Leak tests results reported in Becquerels or Microcuries per 12 VAC 5-481-1420.</p> <p>e. Contamination surveys for Depleted Uranium shielding is performed at intervals not to exceed 12 months per 12 VAC 5-481-1250 E.</p> <p>f. Records are maintained for 3 years per 12 VAC 5-481-1420.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	---

11. Receipt and Transfer of Radioactive Material

<p>a. Describe how packages are received. Who receives them?</p> <p>b. Licensee package receipt procedures in place per 12 VAC 5-481-900.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
---	---

12. Facilities, Materials and Equipment

a. List the sources:

No	Rec Date	MFG	Isotope	Model #	S/N	Activity (Ci)	Activity Date	Disp/Transfer Date
1								
2								
3								
4								

Note: Use additional supplementary inventory sheet if needed.
 Request a copy of most recent inventory from licensee.
 Match the source(s) number with the camera(s) number below.

b. List the cameras/source changers:

No	MFG	Model #	S/N	Notes
1				
2				
3				
4				

Note: Use additional supplementary inventory sheet if needed.
 Request a copy of most recent inventory from licensee.
 Match the camera(s) numbers with the source(s) above.

- | | |
|---|--|
| c. Licensee maintains records of transferred/disposed sources/devices for 3 years following the transfer/disposal per 12 VAC 5-481-1400 . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| d. Licensee maintains utilization log(s) for each device and records are retained for 3 years per 12 VAC 5-481-1440 B . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| e. Use and storage area(s) meet the following criteria: | |
| (1) Same as described in license. [L/C] | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (2) Adequate controls in place to prevent unauthorized access to radioactive materials in storage per 12 VAC 5-481-1230 . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (3) Radioactive material in an unrestricted area and not in storage is secured against unauthorized removal from an unrestricted area per 12 VAC 5-481-840 . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (4) Quarterly inventories performed per 12 VAC 5-481-1260 . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (5) Records of quarterly inventories maintained for 3 years per 12 VAC 5-481-1430 A . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (6) Devices used in accordance with their SSD certification (i.e. source authorized for device, etc). | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| f. Survey instrument(s) meet the following criteria: | |
| (1) Sufficient number to perform surveys at each location per 12 VAC 5-481-1240 . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (2) Capable of measuring a range from 2 mrem per hour through 1 rem per hour, per 12 VAC 5-481-1240 A . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (3) Calibrated at intervals not to exceed 6 months per 12 VAC 5-481-1240 A 1 . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (4) Calibration records retained for 3 years per 12 VAC 5-481-1410 . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| g. Licensee inspection and maintenance program meet the following criteria: | |
| (1) Visual and operability checks performed on survey instruments, radiographic exposure devices, transport and storage containers prior to day's or shift's work per 12 VAC 5-481-1270 A . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (2) Inspection(s) and routine maintenance of radiographic exposure devices, source changers, associated equipment, transport and storage containers and survey instruments performed quarterly per 12 VAC 5-481-1270 D . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| (3) Records maintained for 3 years per 12 VAC 5-481-1450 A . | <input type="checkbox"/> Yes <input type="checkbox"/> No |

- | | |
|---|--|
| <p>h. Decommissioning records for storage locations and records of other occurrences are kept in an identified location per 12 VAC 5-481-450 C 8? .
(i.e. blueprints, appropriate records, as-built drawings)</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>i. Records of device surveys being put in storage area are maintained for 3 years per 12 VAC 5-481-1500.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |

13. Independent Survey Measurements by the VDH Inspector

- | | |
|--|--|
| <p>a. Independent confirmatory surveys performed.</p> <p>(1) Survey instrument used:</p> <p style="margin-left: 20px;">(a) Mfg./Make:</p> <p style="margin-left: 20px;">(b) Model #:</p> <p style="margin-left: 20px;">(c) Serial #:</p> <p style="margin-left: 20px;">(d) Last calibration date:</p> <p>(2) Licensee survey instrument(s)</p> <p style="margin-left: 20px;">(a) Mfg./Make:</p> <p style="margin-left: 20px;">(b) Model #:</p> <p style="margin-left: 20px;">(c) Serial #:</p> <p style="margin-left: 20px;">(d) Last calibration date:</p> <p>(3) Describe inspector instrument readings as compared to licensee instrument readings.</p>
<p>(4) Highest radiation levels for following areas:</p> <p style="margin-left: 20px;">(a) unrestricted area _____ (mR/hr)</p> <p style="margin-left: 20px;">(b) 30 cm (1 ft) from device _____ (mR/hr)</p> <p style="margin-left: 20px;">(c) external surface of device _____ (mR/hr)</p> <p style="margin-left: 20px;">(d) 1 meter from device. _____ (mR/hr)</p> | |
| <p>b. Radiation levels in all unrestricted areas less than 2 mR in any one hour, and resulting non-occupational personnel exposure less than 100 mR/yr per 12 VAC 5-481-720.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>c. The exposure rate at any exterior surface is less than 200 mR/hr with source in the shielded position per 12 VAC 5-481-1220.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>d. The exposure rate at one meter from exterior surface is less than 10 mR/hr with source in the shielded position per 12 VAC 5-481-1220.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |

14. Posting

- | | |
|---|---|
| <p>a. Posting required per 12 VAC 5-481-1380 including:</p> <p>(1) "Caution- Radioactive Material" signs posted per 12 VAC 5-481-860.</p> <p>(2) "Caution Radiation Area" sign posted per 12 VAC 5-481-860.</p> <p style="margin-left: 20px;">Note: "Caution - Radiation Area" sign must be posted if levels are greater than 5 mR/hr at 30 cm from the container surface.</p> | <p style="text-align: center;"> <input type="checkbox"/> Yes <input type="checkbox"/> No
 <input type="checkbox"/> Yes <input type="checkbox"/> No </p> |
|---|---|

<p>b. The following documents are posted in a conspicuous location, or a summary that states where they are located per 12 VAC 5-481-1520:</p> <p>(1) a copy of Parts I, IV, V, and X of 12 VAC 5-481, "Virginia Radiation Protection Regulations"</p> <p>(2) The license, license conditions or incorporated documents.</p> <p>(3) Operating procedures.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
<p>c. Documents are posted in a conspicuous location per 12 VAC 5-481-2260?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

15. Labeling

<p>a. Label on device(s) are properly attached, legible and contain the following per 12 VAC 5-481-1210 B:</p> <p>(1) Radiation symbol.</p> <p>(2) "Caution Radioactive Material"</p> <p>(3) Radionuclide(s) present.</p> <p>(4) Estimate of quantity of radioactivity.</p> <p>(5) Date of estimate.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
--	--

16. Notifications and Reports

<p>a. Have any occupational overexposure or excessive levels of radiation occurred? (1) Were they reported to the agency per 12 VAC 5-481-1110?</p> <p>b. Were there any leaking source(s) since the last inspection? (1) Were they reported to the agency per 12 VAC 5-481-1250?</p> <p>c. Have any theft, loss of licensed material or radiological incident occurred? (1) Was the agency notified per 12 VAC 5-481-1090? If no, describe the root cause and corrective actions taken for each Incident.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
--	---

17. Transportation of Radioactive Materials

<p>a. Package/container meets the design requirements of 49 CFR 173.410.</p> <p>b. DOT 7-A performance test records on file per 49 CFR 173.415(a).</p> <p>c. Special Form Source Certificates, Certificate of Compliance and performance test records are on file per 49 CFR 173.476(a).</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
--	--

18. License Conditions / Tie-downs

<p>a. Were all license conditions reviewed?</p> <p>b. Were licensee activities conducted in accordance with license conditions/ Tie-Downs?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
--	--

19. Bulletins and Information Notices



**Virginia Department of Health
Radioactive Materials Program
Inspection Checklist**

Broad Scope

Some items addressed here may be addressed on other inspection forms.

Licensee and Inspector Information

License No.:	Date of Inspection:	Priority:
Type of Inspection:	Announced <input type="checkbox"/> Unannounced <input type="checkbox"/> Initial <input type="checkbox"/> Routine <input type="checkbox"/> Special <input type="checkbox"/>	Date of Last Inspection:

Licensee (name and address):

Inspection

Site Address:

Contact Person: _____ **Contact Tel No.:** _____

Summary of Findings and Actions

- No Violations Cited
 Violation(s) Issued
 Repeat Violations

Next Inspection Date: Normal Reduced Extended

**Justification for Change
in Inspection Frequency:**

Lead Inspector:

Sign Name _____

Print Name _____

Date _____

Accompanying Inspector:

Sign Name _____

Print Name _____

Date _____

Reviewed By:

Sign Name _____

Print Name _____

Date _____

Notes:

Inspection Overview

Scope: Describe the major areas and/or programs focused on during the inspection.

Notes:

Summary of findings:

Amendments and Program Changes (Review from last License renewal)

a. Amendment #	b. Date:	c. Subject/Items.

Inspection History

<p>a. Items of violations cited at last inspection.</p> <p>1. Previous violation(s) properly corrected. If no, list those violations with an explanation.</p> <p>b. List recommendations given at last inspection:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
--	--

Organization and Scope of Program

a. Identify all individuals in attendance at entrance meeting.

Individual 1:

Individual 2:

Individual 3:

Individual 4:

b. Describe the organizational structure:

1. Type:

Type A

Type B

Type C

2. Identify the following Individuals:

RSC Chairperson:

RSO :

Others:

Are these individuals the same as listed on the license?

Yes No

If no, was an amendment request received by the department?

Yes No N/A

c. Mailing address and authorized locations of use are as identified on license?

Yes No

d. Describe the licensed material program.

(number and types of users, special facilities, radiation safety office staffing, etc...)

e. Observations and findings:

Management Oversight

- | | |
|--|--|
| a. Management supports ALARA per 12 VAC 5-481-630 . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| b. Management supports RSC/RSO efforts. | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| c. Are radiation protection annual audits of the radiation safety office performed per 12 VAC 5-481-630 . | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 1. Audits conducted by: | |
| 2. Scope (areas of the program reviewed): | |
| 3. Are audits records maintained for three years? 12 VAC 5-481-990 | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 4. Inspector reviewed licensee audit records. | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 5. Were any deficiencies found in the program during a program review? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If yes, have the deficiencies been corrected? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| d. Are radiation protection audits of users/workers performed? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 1. Audits conducted by: | |
| 2. Audits are performed at required frequencies? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 3. Scope (areas of the program reviewed): | |
| 4. Audit records maintained. [L/C] | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 5. Inspector reviewed licensee audit records. | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 6. Were any deficiencies found in the program during a program review? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If yes, have the deficiencies been corrected? | <input type="checkbox"/> Yes <input type="checkbox"/> No |

e. Performance Evaluation Factors (P.E.F.) reviewed include the following:

1. Senior management involved with radiation safety program.
2. RSO oversight.
3. RSO too busy with other assignments.
4. Sufficient staffing for licensee program.
5. Adequate audits being performed.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Yes	<input type="checkbox"/> No

f. Radiation Safety Officer (RSO) performs duties as assigned by the licensee.

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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g. Licensee has established an RSC in accordance with **12 VAC 5-481-460** (Broad) and/or **12 VAC 5-481-1700** (Medical).

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
------------------------------	-----------------------------	------------------------------

h. RSC quorum is as submitted. [L/C]

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
------------------------------	-----------------------------	------------------------------

i. Meeting minutes are available for review?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
------------------------------	-----------------------------	------------------------------

j. The RSC meets often enough to ensure the radiation protection program is operating in compliance with the license.

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
------------------------------	-----------------------------	------------------------------

k. Observations and findings:

Facilities

Criteria: **Facilities as described in license; uses; control of access; engineering controls; calibration facilities; shielding; airflow; special use locations**

Observations and Findings:

Material Use, Control and Transfer

Criteria: Materials and uses authorized; security and control of licensed materials; and procedures for ordering, receipt and transfer of licensed material

Observations and Findings:

Equipment and Instrumentation

Criteria: Licensee possesses and uses appropriate, operable and calibrated equipment; licensee follows procedures

Observations and Findings:

Surveys and Contamination Control

Criteria: Licensee performs appropriate surveys, air monitoring, wipes, leak tests, and results are available for review. Licensee uses proper protective attire. Conduct interviews or observations to ensure compatibility and perform independent measurements to confirm.

Observations and Findings:

Training and Instruction to Workers

Criteria: Training and retraining requirements and documentation; interviews and observations of routine work; staff knowledge of all routine activities; 12 VAC 5-481 'Radiation Protection Regulations', Parts IV and X requirements; emergency situations; and supervision by authorized users

Observations and Findings:

Personnel Monitoring	
<p>a. Dosimeter processor is NAVLAP certified per 12 VAC 5-481-750. 1. List Film / TLD Supplier</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. Monitoring reports reviewed by Licensee: [L/C] <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Annually</p>	
<p>c. Licensee provides all workers a written report of their annual radiation exposure per 12 VAC 5-481-2280.</p> <p>Are these records maintained? 12 VAC 5-481-1040</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
<p>d. Upon request of employee after termination of employment, workers exposure records provided within 30 days per 12 VAC 5-481-2280.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>e. Review of personnel monitoring records, from _____ To _____ 1. Max. DDE mR <input type="checkbox"/> Month <input type="checkbox"/> Quarter <input type="checkbox"/> Year 2. Max. SDE mR <input type="checkbox"/> Month <input type="checkbox"/> Quarter <input type="checkbox"/> Year</p>	
<p>f. Personnel monitoring records maintained for duration of the license. 12 VAC 5-481-1040</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>g. Bioassays performed as required by the license. [L/C]</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>h. The specific information used to calculate the internal radiation exposure under 12 VAC 5-481-670 is maintained for the duration of the license. 12 VAC 5-481-1040</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>i. Dose evaluations or surveys of unrestricted areas are performed and documented to ensure public dose does not exceed 2 mrem in any one-hour or 100 mrem in one year.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>j. The specific information used to assess the dose to individual members of the public is maintained for the duration of the license. 12 VAC 5-481-1050</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Posting and Labeling	
<p>a. Posting required per 12 VAC 5-481-860. 1. "Caution- Radioactive Material" signs posted per 12 VAC 5-481-860. 2. "Caution Radiation Area" sign posted per 12 VAC 5-481-860. Note: "Caution – Radiation Area" sign must be posted if levels are greater than 0.05 Sv (5 mR/hr) at 30 cm from a sealed source. 3. "High Radiation Area" signs posted per 12 VAC 5-481-860.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>b. The following documents are posted in a conspicuous location, or a summary that states where they are located per 12 VAC 5-481-2260: (1) 12 VAC 5-481, Parts IV and X. (2) The license, license conditions or incorporated documents. (3) Operating procedures.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No

c. The following documents are posted in a conspicuous location per **12 VAC 5-481-2260**:

Yes No

(1) (2) "Notice to Employees" form.

d. Transport containers/devices are labeled and legible per **12 VAC 5-481-880**.

Yes No N/A

Note: This includes a visible label including: "Caution, Radioactive Material", radionuclide(s) present, estimate of quantity, date for which activity is estimated, and radiation levels.

Independent Survey Measurements by the VDH Inspector

a. Independent confirmatory surveys performed.

1. Survey instrument used:

Mfg./Make:

Model #:

Serial #:

Last calibration date:

2. Licensee survey instrument(s):

Mfg./Make:

Model #:

Serial #:

Last calibration date:

3. Describe inspector instrument readings as compared to licensee instrument readings.

4. Highest radiation levels for following areas:

Unrestricted areas _____ (mR/hr).

Note: including the floor/ceiling if applicable.

Restricted areas _____ (mR/hr).

Other locations surveyed:

Transportation of Radioactive Materials

Licensee has shipped packages since last inspection.

Yes No

Limited

Yes No

Excepted

Yes No

Type A

Yes No

If Type A packages were shipped were the following met:

(a) Package/container meets design criteria of 49 CFR 173.410

Yes No

(b) DOT 7-A performance test records on file per 49 CFR 173.415

Yes No

(c) Package labeled properly

Yes No

(d) Activity per instrument and per package did not exceed A-1 limit per 49 CFR 173.424

Yes No

(e) Workers are HAZMAT trained and records are on file per 49 CFR 172.704

Yes No

Yes No

Type B shipped by the licensee

Yes No

Waste Management

Criteria: Disposal of material is per license and records are available for review. Disposal; effluent pathways and control; storage areas; transfer; packaging, control, and tracking procedures; equipment; incinerators, hoods, vents, and compactors; license conditions for special disposal method.

Observations and Findings:

Decommissioning

Criteria: Records are available.

Observations and Findings:

Notifications and Reports

Criteria: Have any thefts, losses, incidents, or overexposures occurred and have they been reported to the agency?

Notes:

License Conditions / Tie-downs	
<p>a. License conditions reviewed.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>b. Licensee activities conducted in accordance with license conditions/ Tie-Downs.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
Information Notices	
<p>a. Licensee is receiving information notices.</p> <p style="margin-left: 20px;">1. Licensee has taken appropriate action in response to the notices. Note: Inspector will provide copies if the licensee has not received them.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
Exit Meeting at Conclusion of Inspection	
<p>a. Identify and list the individuals in attendance.</p>	<p>Date Conducted:</p>
<p>b. List those issues discussed at the exit meeting.</p>	
Summary of Violations and Recommendations	



**VIRGINIA DEPARTMENT OF HEALTH
Radiological Health Section
Narrative Inspection Report**

FIXED GAUGES

Licensee and Inspector Information:

License/Registration No.: _____ **Inspection Date:** _____

Licensee (name and address):

Inspection Site Address (authorized use or storage):

Licensee Contact: _____ **Contact Telephone No.:** _____

Date of Last Inspection: _____ **Type of Inspection(s):**
 Announced Unannounced
 Initial Routine

Priority: _____

Next Inspection Date:
 Normal Reduced Extended

Justification(s) for change in Inspection Sequence:

Summary of Findings and Actions: [12 VAC 5-481-110]
 Violation(s) Issued Repeat Violations No Violations Cited

Lead Inspector:
(Sign Name) _____ Date _____
(Print Name) _____

Inspector:
(Sign Name) _____ Date _____
(Print Name) _____

Reviewed By:
(Sign Name) _____ Date _____
(Print Name) _____

Notes:

Inspection Report /Checklist

12 VAC 5-481-110

1. Amendments and Program Changes:

12 VAC 5-481-510

(Review from last license renewal)

12 VAC 5-481-520, 12 VAC 5-481-530.

a. Amendment #

b. Date:

c. Subject/Items:

Note:**2. Organization:**

12 VAC 5-481-450 & 12 VAC 5-481-470

a. Briefly describe licensee organizational structure as it pertains to licensed activities.

b. Organizational structure meets requirements as identified on license.

 Yes Noc. **Radiation Safety Officer (RSO) identified on license.**

[L/C]

 Yes No

(1) Performs duties as required of RSO. (Appendix I VAREG)

[L/C]

 Yes No

(2) To whom does the RSO report?

(3) Has there been a change in the RSO? Was the license amended?

 Yes No N/A

d. Has there been a change in the licensee contact person for the Department?

 Yes No**e. Identify and record all individuals in attendance at entrance meeting.** (attach additional sheets)

Individual 1:

Individual 2:

Individual 3:

Individual 4:

3. Scope of Licensee Program:

- a. Locations of fixed gauges identified on license. Yes No
- (1) Has the address(s) or location of fixed gauges changed? Yes No N/A
- (2) Has ownership changed? Was the department notified? Yes No N/A
- (3) List location(s) of radioactive sources/ devices and identify location of inspection.

b. Personnel interviewed at licensee address during the inspection. (attach additional sheets)

** Indicates those individuals in attendance at exit meeting.

Individual 1:

Individual 2:

Individual 3:

Individual 4:

Note:

c. Briefly describe the license material program: (who, what, when, how things are done, etc)

Note: the inspector should request a copy of licensee's most recent inventory of sources.

- (1) Fixed gauges are secured and used, consistent with manufacturer recommendations or conditions of authorized use listed on the license? [L/C] Yes No

- (2) Manufacturer's / distributor's manual for operation and maintenance for each type of fixed gauges in use are available. Yes No

Note: check SSD registration certificate.

Use the attached gauge inventory sheet for additional entries.

Manufacturer Receipt Disposal Transfer Model # Isotope Activity(mCi) Source # Leak Test Date:

Note:

4. Management Oversight:

a. Management supports ALARA. [12 VAC 5-481-630] Yes No

b. Management supports RSO efforts. Yes No

c. Radiation protection annual audits are being performed? [12 VAC 5-481-630] Yes No

(1) Audits conducted by?

(2) Scope of audit (areas of the program licensee reviewed)

(3) Audits and review records of the licensee program are being maintained. [12 VAC 5-481-630]

Note: These records must be kept for three years after they are made. Yes No

(4) Audits conducted at intervals not exceeding 12 months. [12 VAC 5-481-990] Yes No

(5) Deficiencies found in the program during the licensee last two audits?
If yes, have the deficiencies been corrected? Yes No

(6) Records reviewed by department Inspector. Yes No

e. Performance evaluation factors (P.E.F.).

(1) Senior management is involved with the radiation safety program oversight. Yes No

(2) RSO too busy with other duties. Yes No

(3) Sufficient staffing to support licensee program. Yes No

(4) Adequate audits of the licensee program.

Yes No

5. Inspection History of Licensee's Program:

a. Is this an initial inspection? State Agreement State (12 VAC 5-481)
 Yes No Yes No

b. Last inspection date at this location.

c. List previous items of violations:

d. Have previous violation(s) been properly corrected? Yes No
If no, list those violations not corrected with an explanation.

e. List previous items of recommendations:

f. Did licensee address previous recommendation(s) Yes No N/A
If no, explain.

6. Staff Training Program:

a. Did each authorized user receive training or instructions from the manufacturer at the time that the gauge(s) were installed? Yes No

b. An equivalent training course approved by the department was given. (Appendix J of VAREG)
 Yes No

(1) Who was the Trainer/Instructor?

(2) List subjects/topics covered:

(3) List the individuals considered trained and approved by the RSO as authorized users. [L/C]

Note: Inspector should check training records for each authorized user.

c. Personnel working in the vicinity of a fixed gauge have completed a 1 to 2 hour safety orientation course? Yes No

(1) List workers who took the orientation course and were approved in writing by the RSO. [L/C]

d. All training records are available for the department review. Yes No

e. During the department inspection, did the inspector observe the user performing routine maintenance on the gauges? Yes No

If yes, briefly describe who was interviewed and what was observed.

(1) Inspector observed gauges being used. Yes No

(2) Personnel authorized to perform **Non-Routine** maintenance on gauges? Yes No
If yes, list individual(s) and review documented training and procedures use.

(3) The gauge users know what to do in case of an emergency? Yes No

(4) Are there written operating and emergency procedures? Yes No

(5) Have there been any emergencies since last inspection? Yes No N/A
If yes, was the department notified?

(6) Workers have a copy of VA "Radiation Protection Regulations" 12 VAC 5-481 available to them.
 Yes No

7. Notification and Reports:

12 VAC 5-481-2280

a. Did the licensee provide all fixed gauge users, with badges, a written annual report of their radiation exposure? [12 VAC 5-481-2280.B] Yes No N/A

(1) The occupational radiation exposure reports are maintained? Yes No

(2) At termination of employment, are worker's exposure records available to he/she upon request?
[12 VAC 5-481-2280.E] Yes No

b. Has any theft or loss of licensed material occurred since the last inspection? [12 VAC 5-481-1090.A] Yes No

c. Has there been any reportable incident since last inspection? [12 VAC 5-481-1100] Yes No

If yes, describe the root cause and corrective actions taken.

d. Has any occupational overexposure or excessive levels of radiation been reported to the department? [12 VAC 5-481-1110 & 2280.D] Yes No

e. The RSO and all authorized users are aware of the department's emergency telephone number. Yes No

Note: Dept 24-hour emergency # (804) 864-8150

8. Posting:

12 VAC 5-481-2260

a. Fixed gauge locations are properly posted.

[12 VAC 5-481-860]

Yes

No

Note: Required if reading is >5mR/hr@ 30 cm from gauge's surface.

[12 VAC 5-481-860]

b. "Caution- Radioactive Material" or danger signs posted where required. [12 VAC 5-481-850] Yes No N/A**c. Is there a warning signal at or near the gauge to indicate that the shutter is open?** Yes No

L/C

 N/A**d. The department's " Notice to Employees" posted in an appropriate area.** [12 VAC 5-481-2260 C] Yes No**e. The department's Rules and license are posted, or a notice posted where those documents can be viewed.**

[12 VAC 5-481-2260 A 1]

 Yes No**9. Labeling:**

12 VAC 5-481-880

a. Fixed gauge device labels are attached and legible with symbols, isotope, activity "Caution- Radioactive Material".

[12 VAC 5-481-880]

 Yes No**b. Authorized users have available, a copy of the licensee's "Lock Out" procedures?** Yes No

(1) "Lock Out" warning signs are posted at all entryways where it is possible to be exposed.

 Yes No N/A**10. Leak Test:**

12 VAC 5-481-1250

a. Leak test performed on each sealed source at 6 months intervals as.

[12 VAC 5-481-1250 C 1]

 Yes No

(1) Kit Mfg.:

Test kit model number:

(2) The department inspector observed or requested a demonstration of the user taking a leak test sample.
 Yes No N/A

(3) Records for leakage test are maintained for the department review for a period of 5 years from the date they were made.
[12 VAC 5-481-1250.C.2] Yes No

b. Licensee performs own leak test. [12 VAC 5-481-1250.A & C.1] Yes No N/A

(1) If (b) is yes, are procedures followed as described in Criteria of Appendix R of VAREG?
 Yes No

c. Leak test results are available for the department to review. Yes No

d. Leak test results are reported in Becquerels or Microcuries. Yes No
[12 VAC 5-481-740 D]

e. Any leaking sources since last inspection? [481-1150] Yes No

11. Facilities, Materials and Equipment: 12 VAC 5-481-

a. Use locations and storage area(s) described in license [L/C] Yes No

(1) Fixed Gauges, not in storage, is secured against unauthorized removal from an unrestricted area.
[12 VAC 5-481-840 A] Yes No

(2) Adequate controls in place to prevent unauthorized access to gauge in restricted areas.
[12 VAC 5-481-840 A] Yes No

(3) The licensee owns the property where the gauge is use and stored. [L/C] Yes No
If no, does the department have a letter on file from property owner?

b. Survey instruments are required. [L/C] Yes No N/A
Note: For non-routine operations, a survey instrument is required. [12 VAC 5-481-1240.A]

(1) Does licensee have a survey meter available to them. [L/C] Yes No

(2) Surveys are performed to ensure the public dose will not exceed 100mR/year. Yes No N/A

(3) Survey records kept for three years from date they are made. Yes No N/A

c. Instrument Calibrations are done at intervals, not exceeding 12 months. [12 VAC 5-481-1240 B 1] Yes No

(1) Calibration reports kept for three years from the date they are made. Yes No N/A

12. Radiological Protection Procedures:

a. Fixed gauges are used in accordance with their SSD certification. Yes No

(1) If a portion or all of a person body, can be access between the primary beam and the detector, the licensee must develop "lock out" procedures. Is there such a gauge at this facility? Yes No

b. Operating and Emergency procedures are posted for each type of fixed gauge. Yes No

c. Workers have an adequate understanding of the procedures and rules for the safe use of radioactive materials and working in the vicinity of the fixed gauges. Yes No

(1) The user understands the Operating and Emergency Procedures. Yes No
[12 VAC 5-481-2270 A 1]

(2) Were changes made to the O/E procedures since last inspection?
If yes, describe the changes. Yes No N/A

13. Receipt and Transfer of Radioactive Material: **12 VAC 5-481-560**

a. Describe how fixed gauges are received. Who installs them?

b. The licensee has package receipt procedures in place. Yes No N/A

c. Transfer of radioactive material as authorized. [12 VAC 5-481-560] Yes No N/A

d. Records of receipts, transfers and disposals of licensee's radioactive material are maintained for three years for the department's review. [12 VAC 5-481-100] Yes No

14. Independent Survey Measurements by the department inspector: **12 VAC 5-481-100 C 1**

a. Inspector performed independent surveys. Yes No

b. Inspector survey instrument used:

(1) Mfg. / Make:

(2) Model #:

(3) Serial #:

(4) Last calibration date:

c. Licensee survey instrument(s): (if ones available) N/A

(1) Mfg. / Make:

(2) Model #:

(3) Serial #:

(4) Last calibration date:

d. Describe inspector instrument readings as compared to licensee instrument readings.

e. Independent measurements: (Confirmatory)

(1) Highest radiation level in an unrestricted area. (mR)/hr

(2) Highest radiation levels at 30 cm from storage cabinet. (mR)/hr

(3) Highest radiation levels at 10 cm from device surface. (mR)/hr

(4) Reading at external surface of transportation container. (mR)/hr

f. External radiation level, in all unrestricted areas, measured less than 2mR/hour and 100mR/year.

Yes No

15. Personnel Monitoring:

12 VAC 5-481-760

a. Dosimetry required. [L/C] [12 VAC 5-481-760]. Yes No
N/A

b. Dosimeters provided to workers. Yes No

Note: individuals who are likely to receive > 10% of their dose limits

(1) Type. Film TLD Other

(2) Frequency of dosimeter reports. Monthly Quarterly Other

(3) Dosimeter supplier:

(4) Supplier, NVLAP certified [12 VAC 5-481-750]. Yes No

c. Dosimeter reports reviewed by licensee. [L/C] Monthly Quarterly Annually

d. Personnel occupational dose records are maintained. Yes No

(1) Occupational dose results are reported in Sv or Rem. [12 VAC 5-481-980] Yes No

e. Review of personnel monitoring records, from _____ to _____

(1) Max. DDE _____ (mR) Monthly Quarterly Annually

(2) Max. SDE _____ (mR) Monthly Quarterly Annually

f. Did any workers occupational dose exceed the regulatory limits? Yes No
[12 VAC 5-481-640]

g. Records of personnel occupational dose history retained. [12 VAC 5-481-1020] Yes No

Note: These records must be kept until license is terminated.

h. Is public access to gauges, controlled in a manner that keeps the doses below 2mR/hour and 100mR/year? [12 VAC 5-481-840] Yes No

16. Instructions to workers: **12 VAC 5-481-2270**

a. Training is provided to all individuals / workers who are likely to receive an occupational radiation dose [$>1\text{mSv}(100\text{mR})/\text{year}$] [When Badge] [12 VAC 5-481-2270] Yes No

(1) Monitored personnel are kept informed of their occupational exposures. Yes No

(2) Workers are provided refresher training as needed. [12 VAC 5-481-2270] Yes No

b. Monitoring records maintained for three years. [12 VAC 5-481-2280] Yes No

17. Transportation of Radioactive Material: 12 VAC 5-481-2980 and 49 CFR 171-178

a. Licensee makes shipments of radioactive material. [12 VAC 5-481-2980] Yes No

(1) Security and all applicable regulations followed. [12 VAC 5-481-2980 A 1 h] Yes No

b. Shipments are made to common carriers. [12 VAC 5-481-2980] Yes No

c. Shipments are transported in licensee private vehicle(s). Yes No
[12 VAC 5-481-2980 A 1]

d. No shipments made since last inspection. Yes No

Note: To be completed if shipments were made since last inspection. (e. through g.)

e. Devices packaged and shipped according to regulatory procedures. Yes No
[12 VAC 5-481-2980].

f. Package type used for shipping. [12 VAC 5-481-3000]

g. Package / container meets design requirements. [49 CFR 173.410] Yes No

(1) DOT 7A or other authorized packages used for shipping. Yes No
[49 CFR 173.415(a)]

(2) Package has two labels. (Yellow II with TI, Nuclide, Activity, and Hazard Class.) Yes No

(3) Activity per gauge does not exceed A-1 limit. [49 CFR 173.424(b)] Yes No

(4) Activity per package does not exceed A-1 limit. [49 CFR 173.424] Yes No

(5) Radiation levels at 10cm from surface of the device, read less than 10mR/hr. [49 CFR 173.424(d)] Yes No

(6) Radiation levels at the external surface of the package read less than 2mR/hr. [49 CFR 173.424(e)] Yes No

(7) All proper shipping requirements are met. [49 CFR 172.200-204] Yes No

Note: shipper's name, description of shipment, hazard class, UN number, nuclide, total quantity, package type, RQ, physical/chemical form, activity, category label, TI, certification and signature(s), emergency phone numbers).

(8) Emergency procedures and response telephone number(s) available. [49 CFR 172.201(d)] Yes No

(9) Shipping papers prepared and used. Yes No

(10) Shipping papers are readily accessible to the driver during transportation. [49 CFR 171.77.842(d)] Yes No

(11) Special form sources documentation on file. Yes No

(12) Vehicle placarded as required (yellow III, if TI > 1.0). Note: Only required with yellow III labels. [49 CFR 172.504(a)] Yes No N/A

(13) Proper Over-packs used and labeled. [49 CFR 173.25] Yes No N/A

(14) Hazmat training. [49 CFR 172.704] Yes No N/A

18. License Conditions / Tie-downs:

a. All license conditions reviewed by department Inspector. Yes No

b. Licensee activities were conducted in accordance with license conditions. Yes No

19. Information Notices:

a. Licensee is receiving the department information notices and bulletins. Yes No

b. Licensee has taken appropriate action in response to the bulletins and notices.
 Yes No

20. Exit Meeting at Conclusion of Inspection:

a. Identify and list the individuals in attendance.

b. List those issues discussed at exit meeting.

21. Summary of Violations and Recommendations:

**Virginia Department of Health
Radioactive Materials Program
Inspection Report**



**Nuclear Medicine Programs
Diagnostic & Therapeutic**

Licensee and Inspector Information:

License Number:

- In Vitro. [12 VAC-5-481-430 G]
 Limited Scope. [12 VAC-5-481-440 & 12 VAC 5-481-450] **Inspection Date:**
 Broad Scope. [12 VAC-5-481-460]

Licensee (name and address):

Inspection Site Address (authorized use or storage):

Licensee Contact:

Contact Telephone No.:

Date of Last Inspection:

Type of Inspection(s):

- Announced Unannounced
 Initial Routine
 Other

Priority:

Next Inspection Date:

- Normal Reduced Extended

Justification(s) for change in Inspection Sequence:

Summary of Findings and Actions: [12 VAC-5-481-110]

- Violation(s) Issued No Violations Cited Repeat Violations

Lead Inspector:

(Sign Name) _____ Date _____

(Print Name) _____

Inspector:

(Sign Name) _____ Date _____

(Print Name) _____

Reviewed By:

(Sign Name) _____ Date _____

(Print Name) _____

Nuclear Medicine Inspection Report/Checklist

Note: Some of the inspection requirements listed may not be applicable to all medical licensees.

12 VAC 5-481-110, 12 VAC 5-481-1670 & 12 VAC 5-481-1680

1. Significant Program Changes

12 VAC 5-481-520, 12 VAC 5-481-530 &

2. (Review from last license renewal)

12 VAC 5-481-1680

a. Amendment #	b. Date:	c. Amendment Item(s):
----------------	----------	-----------------------

Note:

2. Program Inspection History:

- a. Is this an initial inspection? Yes No N/A
- Last inspection date at this location.
- b. List previous open items of violations:
- c. Have previous violation(s) been properly corrected? Yes No N/A
If no, list those violations not corrected with an explanation.
- d. List previous items of recommendations:
- e. Did licensee address previous recommendation(s) Yes No N/A
If no, explain.

3. Organization:

Note: request organizational chart.

- a. Briefly describe licensee organizational structure as it pertains to licensed activities. [L/C]
- b. Organizational structure meets requirements as identified on license. Yes No
- c. Radiation Safety Officer (RSO) identified on license. [L/C] Yes No
- (1) RSO fulfills his/her duties as required. [L/C] Yes No
[12 VAC 5-481-630 & 12 VAC-5-481-1700]
- (2) To whom in the organization does the RSO report?
- (3) The RSO has sufficient access to licensee's senior management? Yes No
- (4) Has there been a change in the RSO? Yes No N/A
[12 VAC-5-481-1690 & 12 VAC-5-481-1700]
- If yes, has the license been amended? [12 VAC-5-481-1680] Yes No N/A

(5) RSO has sufficient authority to manage the licensee's radiation safety program.

[12 VAC 5-481-630 & 12 VAC-5-481-1700]

Yes

No

Note: Confirm through discussions with management and licensee personnel whether changes have occurred in licensee ownership, changes in the RSO authority or duties that may impact his/her ability to safely conduct the licensee's radiation protection program.

d. Identify and record all individuals in attendance at entrance meeting.

Individual 1:

Individual 2:

Individual 3:

Individual 4:

Individual 5:

4. Scope of Licensee Program:

Check all applicable modalities for this licensee:

In-Vitro Studies

Nuclear Medicine (Diagnostic)

Nuclear Medicine (Therapeutic)

Mobile Nuclear Medicine

Sealed Sources for Diagnosis

Manual Brachytherapy

Remote Afterloaders

Teletherapy

Gamma Stereotactic Radiosurgery

a. Describe the licensee's radioactive materials program(s). [L/C, 12 VAC-5-481-490]

Note: Include frequency of use, staff size, number of studies etc to determine the scope of the program.

Personnel interviewed at licensee address during the inspection. (attach additional sheets)

** Indicates those individuals in attendance at exit meeting.

Individual 1:

Individual 2:

Individual 3:

Individual 4:

Individual 5:

(1) Are location(s) of use and storage as identified on license? [L/C]

Yes

No

(2) Radioactive materials in licensee possession are as indicated on the license. [L/C]

Yes

No

Note: Request a copy of licensee's most recent inventory of radioactive materials, including sealed sources.

b. Review Authorized Users.

Note: Review weekend and emergency schedule AU coverage.

Are the Authorized Users named on the license or authorized by the RSC (broad scope)?

[12 VAC-5-481-460 & 12 VAC-5-481-1700]

Yes

No

If no, was an amendment request made within the past 30 days?

Yes

No

[12 VAC 5-481-520 & 12 VAC-5-481-1680]

c. Description of any special programs authorized.

(1) Does the licensee have a radiopharmacy (i.e. PET) for in-house use? Yes No

(2) Does the licensee conduct research on human subjects? Yes No

[12 VAC-5-481-1670]

(3) Is the research authorized by license (specific) or by a RSC (broad scope)? Yes No

(4) Does the licensee have a written and signed informed consent from research subjects?

[12 VAC-5-481-1670] Yes No

(5) Is an authorized Nuclear Pharmacist (ANP) named on the license or authorized by the RSC (broad scope)?

[12 VAC-5-481-10 & 12 VAC-5-481-1700] Yes No N/A

Note: Optional unless commercial distribution for radiopharmaceuticals

If no, was an amendment request made within the past 30 days? Yes No

[12 VAC 5-481-520 & 12 VAC-5-481-1690]

d. Radiopharmaceutical Therapy/Written Directives Required.

(1) Does Licensee administer dosages of I-131 greater than 1.11 MBq (30 μ Ci) or other radiopharmaceuticals used for therapy? Yes No

If yes, are Written Directives (WD) procedures in place and followed.

[12 VAC-5-481-1720 & 12 VAC-5-481-1730] Yes No

e. Written Directive (WD) procedures have been established for each applicable modality?

[12 VAC-5-481-1720, 12 VAC-5-481-1730, 12 VAC-5-481-2070] Yes No

(1) Has the licensee included a review of WD's in the annual program review?

[12 VAC-5-481-630] Yes No

Have records been maintained for three years?

[12 VAC-5-481-2070] Yes No

(2) Has the licensee provided WD procedure training for supervised individuals?

[12 VAC-5-481-1710] Yes No

f. Patient Release

(1) Are therapy patients released under 12 VAC-5-481-1870? Yes No N/A

If yes, is the licensee following procedures? [L/C] Yes No

(2) Were any of the options identified in 12 VAC-5-481-1870 utilized? Yes No N/A

Note: Options include; retained radioactivity, occupancy factor, biological half-life or shielding by tissue.

If yes, did the licensee retain records of the basis for authorizing the release of a person for 3 years?

[12 VAC-5-481-2070] Yes No

(3) Are written instructions provided to released patient who are likely to produce an external dose to others in excess of 1 mSv (100 mRem)? [12 VAC-5-481-1870] Yes No N/A

(4) Are additional written instructions provided to breast feeding woman if the TEDE to a breast feeding infant or child could exceed 100 mrem? [12 VAC-5-481-1870] Yes No N/A

(5) Are records maintained for 3 years of instructions provided to released breast feeding women?
[12 VAC-5-481-2070] Yes No N/A

g. Medical Events

(1) Has the licensee reported to the agency any medical events? Yes No

Note: Licensee's record review could help in determining compliance.

(2) If yes, have the records of the medical event been maintained for three years?
[12 VAC-5-481-2080] Yes No

5. Mobile Medical Services: 12 VAC 5-481-1880 & 12 VAC 5-481-2070

a. Authorized Uses

(1) Is the licensee authorized for Mobile Medical Services? Yes No

Note: If yes, complete section 5

(2) The mobile service is licensed to possess and use:

Unsealed material for uptake, dilution and excretion studies. **WD not required.**

[12 VAC-5-481-1900]

Unsealed material for imaging and localization studies. **WD not required.**

[12 VAC-5-481-1920]

Mobile Remote Afterloaders **WD required.**

[12 VAC-5-481-2040]

Calibration and Reference Sources > 30 mCi / source (including Transmission).

b. Scope of licensees Program:

(1) Is the mobile service responsible for all licensed activity? Yes No

If not, describe the specific responsibilities of the client (e.g., package receipt, surveys, waste disposal)

(2) Is the mobile service authorized for PET? Yes No

Note: Mobile PET Inspection Form is available for use.

c. General Requirements

(1) Is a letter on file from each client authorizing the use of radioactive materials at their facility by the mobile service? Yes No

[12 VAC-5-481-1880]

(2) Is the radioactive material delivered directly to the mobile nuclear service. Yes No

[12 VAC-5-481-1880]

If not, does the client have a license authorizing possession of the radioactive material?

[12 VAC-5-481-1880] Yes No N/A

(3) Is all radioactive material removed from client's facility before leaving? **[L/C]** Yes No

(4) Is a calibrated survey meter available for use at the client's facility? Yes No

[12 VAC-5-481-1880]

(5) Is a constancy test for the dose calibrator performed before use at each client's address? Yes No

[12 VAC-5-481-1880]

(6) Have surveys been performed of all areas of use before leaving the job site? Yes No

[12 VAC 5 481 1880]

- Contamination surveys performed? Yes No
 Area (dose rate) surveys performed? Yes No
 Are records maintained for three years? [12 VAC-5-481-2070] Yes No

(7) Are radioactive materials secured and under constant surveillance during transport and at the location of use. [12 VAC-5-481-840] Yes No

(8) All syringe(s) and vial(s) containing radiopharmaceuticals are labeled? [12 VAC-5-481-1850] Yes No

7. Management Oversight:

a. Does management support ALARA? [12 VAC-5-481-630] Yes No

b. Is a Radiation Safety Committee (RSC) required. [12 VAC 5-481-460 & 12 VAC-5-481-1700] Yes No

Note: Required for two or more different types of uses

If yes, who is the committee chairperson?

(1) RSC meets quarterly, and records of the meetings are available for review. [L/C] Yes No N/A

(2) Quorums established at RSC quarterly meetings. [L/C] Yes No

c. Are annual radiation safety program reviews (audit) being performed [12 VAC-5-481-630, 12 VAC-5-481-1700] Yes No

(1) Program reviews conducted by:

(2) Scope of annual program reviews (Identify areas of the licensee's program reviewed).

(3) Are records being reviewed by management and maintained? [12 VAC-5-481-990 & 12 VAC 5-481-2070] Yes No

Note: These records must be kept for three years after the date on which they were made.

(4) Were any deficiencies found in the program during a program review? Yes No
 If yes, have the deficiencies been corrected?

Note: The inspector should look for repeat deficiencies.

(5) Did VDH Inspector review records? Yes No

d. Performance evaluation factors (P.E.F.).

Note: PEF evaluations are best accomplished by interviewing management, RSO, ANP, AU and other licensee's personnel.

(1) Senior management is involved with the radiation protection program and RSO oversight. Yes No

(2) The RSO has sufficient time to perform his/her radiation safety duties. Yes No

(3) Licensee has sufficient staffing to support its activities and radiation protection programs.

Yes No

8. Facilities:

12 VAC 5-481-450 & 12 VAC 5-481-840

a. Has the facility design or the location of material use changed?[L/C] Yes No

If yes, has the license been amended? Yes No

Note: The Inspector should request a tour of the licensee's facilities. Check postings and security of "hot lab." contamination monitoring station(s) and posted worker's instructions, etc.

b. Through observations, are the areas for material receipt, use and storage secured and adequate for Licensee's activities? Yes No

(1) Areas assigned for receipt, use and waste storage of licensed materials are as identified in the license?

Yes No

(2) The "hot lab" is secured at all times when not occupied?

Yes No

[12 VAC-5-481-840]

(3) Is the "hot lab" properly posted?[12 VAC-5-481-860]

Yes No

c. Molybdenum-99 (Mo-99) / Technetium-99m (Te-99m) Generators are utilized by the licensee.

[L/C]

Yes No N/A

If yes, the generators are properly shielded and isolated to keep radiation levels ALARA?

Yes No N/A

(1) The concentration for each elute/extraction for Tc-99m does not exceed 0.15 uCi of Mo-99 per mCi of Tc-99m?

[12 VAC-5-481-1930]

Yes No

(2) Records of Molybdenum concentration tests are maintained for three years. Yes No

[12 VAC-5-481-2070]

d. Prior to medical use the licensee determines and records the activity of each dosage?

[12 VAC-5-481-1820]

Yes No N/A

For direct measurements a calibrated instrument (dose calibrator) is used? Yes No

For decay correction, determination is based on an authorized measurement? Yes No

Note: e.g., manufacturer or nuclear pharmacy

e. Prior to medical use, the licensee determines and records the activity of each non-unit dose?

Yes No N/A

For direct measurements a calibrated instrument (dose calibrator) is used? Yes No

A combination of direct measurements and calculations is used? Yes No

A combination of volumetric measurements and mathematical calculations based on an authorized measurement?

i.e., manufacturer or nuclear pharmacy

Yes No

9. Survey Equipment and Instrumentation:

12 VAC 5-481-450, 12 VAC 5-481-750

& 12 VAC 5-481-1800

a. There are sufficient numbers of portable survey meters and fixed monitoring equipment, which conforms to the license description. [L/C] Yes No

(1) Annual calibration records are being maintained for each survey meter and fixed monitoring units for three years? [12 VAC-5-481-1810, 12 VAC-5-481-2070] Yes No

(2) Annual calibrations of licensee's equipment are being performed. [L/C]
 In-house Authorized Service Provider
 License number of service provider (calibration vendor) _____

Note: Request or make a list of monitoring and survey equipment, pertaining to the instrument calibration date, model #, serial #, etc.

b. Has any equipment required for radiation safety been disabled or failed to function as designed. [12 VAC-5-481-1100] Yes N

Note: Any of the following equipment is required to prevent exposures or releases; equipment is required to be available and operable; no redundant equipment is available.

c. Dose Calibrator Calibration. [12 VAC-5-481-1800, L/C] N/A

(1) Constancy checked each day prior to assay of patient dosages. $\pm 10\%$ accuracy. Yes No

Note: Dedicated check source for this procedure must be used.

(2) Linearity checked at installation and quarterly. $\pm 10\%$ accuracy. Yes No

(3) Geometry dependence checked at installation. $\pm 10\%$ accuracy. Yes No

Note: Must be checked against volumes and configurations. (volumes dispense and syringe sizes)

(4) Accuracy checked at installation and yearly. $\pm 10\%$ accuracy. Yes No

Note: If the dose calibrator has been repaired, relocated or adjusted, all appropriate tests listed above must be repeated, and be within $\pm 10\%$ accuracy before putting the calibrator back in use.

(5) Has the dose calibrator been repaired, relocated or adjusted? Yes No

If yes, have all appropriate test listed above been repeated? Yes No

Note: Equipment Safety Component Defects: Are procedures in place to identify, evaluate, and report equipment safety component defects? [refer to 10 CFR 21.21, voluntary report to VDH] Records are kept for 5 years. Inquire about basic components of licensee's equipment where a failure or defect has been found. If these failures or defects are left unattended; they could become substantial safety hazards.

10. Surveys and Contamination Control: **12 VAC 5-481-450 & 12 VAC 5-481-750**

a. Are surveys being performed for radiation levels and removable contamination? [L/C] Yes No

(1) Are ambient radiation level surveys being performed and records maintained? [12 VAC-5-481-750, 12 VAC-5-481-1000, L/C] Yes No

Daily (elution, prep, assay and administration) Yes No

Weekly (use, storage and waste storage) Yes No

Monthly (Lab areas: small quantities < 200 uCi) Yes No N/A

(2) Are removable contamination surveys being performed and records maintained? [L/C, 12 VAC 5-481-750, 12 VAC 5-481-1000] Yes No

Weekly (elution, prep, assay and administration) Yes No

Monthly (storage and waste storage) Yes No N/A

Are results reported in dpm per 100 cm² Yes No

(3) List survey meter(s) used to measure ambient radiation levels.

Note: check meter type, model, serial #, calibration records, check source and batteries.

(4) Identify the instrument(s) used for detecting removable contamination.

Note: check instrument type, model, serial #, calibration records.

b. Are corrective actions being implemented and documented when excess radiation or contamination levels are detected? Yes No

(1) Action level for ambient radiation levels established and used? [L/C] Yes No

(2) Appropriate actions taken when the licensee's ambient radiation action levels have been exceeded? Yes No N/A

(3) Action level for removable surface contamination established and used? [L/C] Yes No

(4) Appropriate actions taken when the licensee's removable contamination action levels have been exceeded? Yes No N/A

11. Sealed Source and Leak Test:

12 VAC 5-481-740

a. Leak test performed on each sealed source at 6 months intervals or as specified in SSD Certificate? [12 VAC-5-481-740] Yes No

b. Leak test performed as described in the license. [L/C] Yes No

(1) Leak test results show removable contamination to be less than 185 Bq (0.005 mCi). Yes No

(2) Leak test records are being maintained for three years. [12 VAC 5-481-1010 & 12 VAC-5-481-2070] Yes No

(3) Any source found leaking since last inspection? Yes No N/A

If yes, were the source removed from service and the agency notified? [12 VAC 5-481-1150 & 12 VAC-5-481-1840] Yes No

c. Records are available showing receipt, transfer, and disposal of each sealed source. [12 VAC-5-481-100 & 12 VAC 5-481-570] Yes No

d. Sealed sources are physically inventoried at six-month intervals. [12 VAC-5-481-1840] Yes No

Note: Obtain a copy of the licensee's current sealed source inventory.

12. Radioactive Materials Use And Control:

12 VAC 5-481-840

a. Are radioactive materials secured from unauthorized access to or removal from the area? [12 VAC-5-481-840] Yes No N/A

Note: For example; Hot lab is locked when no one is present.

- b. Are radioactive materials in an unrestricted area under surveillance or otherwise controlled at all times?
[12 VAC-5-481-840] Yes No N/A
- c. Procedures are available for receiving and opening packages?
[12 VAC-5-481-900] Yes No
- d. Are radioactive materials that are received authorized by the license? [L/C]
 Yes No
- e. Are radioactive materials transferred to authorized licensee(s)?
[12 VAC-5-481-560] Yes No
Note: For example unused doses or waste transferred back to radiopharmacy.
- f. Records of receipt, transfer and disposal of radioactive materials are maintained?
[12 VAC-5-481-100 & 12 VAC 5-481-570] Yes No

13. Instructions to Workers:

12 VAC 5-481-2270

- a. Are individual workers likely to receive an occupational radiation dose (>1mSv(100mR)/year) provided annually training?
[12 VAC-5-481-2270] Yes No
- (1) Is training commensurate with potential radiological health protection problems present in the workplace?
[12 VAC-5-481-2270] Yes No
- (2) Required training records maintained for three years.
[12 VAC-5-481-100] Yes No
- b. Are non-occupationally exposed workers (<1mSv(100mR)/year) given training?
[L/C] Yes No N/A
Note: (e.g.; housekeeping, security and other ancillary personnel)
- Are training records maintained and available for agency review. Yes No N/A
- c. Hazmat training provided for transportation personnel.
(e.g; courier/drivers of licensee's delivery vehicle) [49 CFR 172.700] Yes No N/A

14. Supervision:

- a. Is the AU/ANP knowledgeable and familiar with the following?
- (1) Written radiation protection procedures? Yes No
- (2) Written directive procedures? Yes No N/A
- (3) 12 VAC, Part VII, 'Use of Radionuclides in the Healing Arts'? Yes No
- (4) License Conditions? Yes No
- b. Are the supervised individual(s) knowledgeable and familiar with the following?
- (1) Written radiation protection procedures?
[12 VAC 5-481-630, 12 VAC 5-481-1700 & 12 VAC-5-481-1710] Yes No
- (2) Do radiation workers wear appropriate protective clothing and use protective equipment?
 Yes No
- Note: Labcoats, protective eyewear, gloves, bench shield, and vial and syringe shields.

- (3) Written directive procedures? [12 VAC-5-481-1720] Yes No N/A
- (4) 12 VAC 5-481 'Virginia Radiation Protection Regulations' Part VII 'Use of Radionuclides in the Healing Arts?' [12 VAC 5-481-630, 12 VAC-5-481-1710 & 12 VAC 5-481-2260] Yes No
- (5) License Conditions? [12 VAC 5-481-630, 12 VAC-5-481-1710 & 12 VAC 5-481-2260] Yes No

**12 VAC 5-481-1090, 12 VAC 5-481-1100,
12 VAC 5-481-1110, 12 VAC 5-481-1150
& 12 VAC 5-481-2080**

15. Notification and Reports:

- a. Did the licensee provide monitored radiation workers an annual written report of their occupational exposure?** [12 VAC-5-481-2280] Yes No N/A
 Note: Should include a statement that this report is furnished pursuant to 12 VAC 5-481 'Virginia Radiation Protection Regulations'

- (1) Occupational radiation exposure reports for monitored personnel are being maintained? [12 VAC-5-481-1040] Yes No
- (2) At termination of employment, are worker's exposure records available upon request? [12 VAC-5-481-2280] Yes No

- b. Has any stolen, lost or missing licensed radioactive material occurred since the last inspection?** [12 VAC-5-481-1090] Yes No

- c. Have any reportable events occurred since the last inspection?** [12 VAC-5-481-1100] Yes No
 Note: (e.g., contamination event restricting access for > 24 hours, equipment failure, contaminated individual requiring medical attention, fire or explosion.)

- d. Has there been any medical event since last inspection?** Yes No
 If yes, describe the root cause and corrective actions taken. [12 VAC-5-481-2080]

- (1) Was the agency notified within 24 hours upon discovery? [12 VAC-5-481-2080] Yes No
- (2) Was the patient's physician notified? [12 VAC-5-481-2080] Yes No
- (3) Was the patient or their guardian notified and written report provided? [12 VAC-5-481-2080] Yes No N/A
- (4) Was a written report submitted within 15 days to the agency? [12 VAC-5-481-2080] Yes No
- (5) Were records maintained for three years? [12 VAC-5-481-2070] Yes No

- e. Has any occupational overexposure and/or excessive levels of radiation been reported to the agency?** [12 VAC-5-481-1090, 12 VAC-5-481-1100 & 12 VAC-5-481-1110] Yes No

- f. The RSO and all authorized users are aware of and have access to the agency's emergency telephone number.** Yes No

Note: Agency 24-hour emergency # (804) 674-2400; VDEM (800) 468-8992

g. Any report(s) of leaking source(s) made to the agency since last inspection?

Yes

No

[12 VAC-5-481-740, 12 VAC-5-481-1150, 12 VAC-5-481-1840 & 12 VAC-5-481-2080]

16. Posting and Labeling:

**12 VAC 5-481-860, 12 VAC 5-481-880
& 12 VAC 5-481-2260**

a. Is posting required?

[12 VAC-5-481-860]

Yes

No

Note: "Caution - Radioactive Material" signs for storage and/or use areas, if the licensed material exceeds 10 times the quantity specified in Appendix F.

(1) "Caution- Radioactive Material" signs posted where required.

[12 VAC-5-481-860]

Yes

No

N/A

(2) "Caution Radiation Area" sign posted as required.

[12 VAC-5-481-860]

Yes

No

N/A

(3) All transported radioactive material containers are labeled and legible.

[12 VAC-5-481-880]

Yes

No

b. The agency's "Notice to Employee" posted in appropriate areas.

[12 VAC-5-481-2260]

Yes

No

c. License and license documents and applicable parts of 12 VAC 5-481 are posted, or a notice of availability is posted for the employee's review. [12 VAC-5-481-2260, 12 VAC-5-481-1690]

Yes

No

d. Emergency procedures are posted. [12 VAC-5-481-2260]

Yes

No

17. Independent and Confirmatory Measurements:

a. Inspector performed independent surveys in restricted, controlled and unrestricted areas.

Note: Independent survey measurements should be conducted on all inspections, especially those areas where materials are prepared and used.

Yes

No

b. Inspector's survey instrument(s) used:

Mfg / Make:

Model #:

Serial #:

Last calibration date:

c. Licensee survey instrument(s):

Mfg. / Make:

Model #:

Serial #:

Last calibration date:

d. Describe inspector instrument readings as compared to licensee instrument readings.

e. Independent readings.

(1) Highest radiation level in unrestricted areas.

(mR)/hr

(2) Highest radiation level in restricted areas.

(mR)/hr

f. Radiation levels in all unrestricted areas do not exceed 2mR/hr in any one-hour or 100mR in a year.

[12 VAC 5-481-720]

Yes

No

g. Reading at external surface of transportation containers.

(mR)/hr

N/A

[12 VAC-5-481-3070]

18. Personnel Monitoring:

a. Dosimetry required?

[12 VAC 5-481-760, L/C]

Yes

No

b. Dosimeters are provided to appropriate personnel.

Yes

No

(1) Type:

Film

TLD

Luxcel

OSL

Whole Body

Extremity

(2) Frequency of reports.

Weekly

Monthly

Quarterly

Other

(3) Dosimeter supplier.

(4) NVLAP certified

[12 VAC 5-481-750]

Yes

No

c. Monitoring reports reviewed by licensee. [L/C]

Monthly

Quarterly

Semi-annually

Note: Identify and record the reviewer.

d. Personnel monitoring records are available for review.

Yes

No

(1) Monitoring results are reported in Sv or Rem.

[12 VAC 5-481-980]

Yes

No

e. Inspector reviewed personnel monitoring records, from

to

(1) Max. DDE _____ mSv _____ (mR)

Monthly

Quarterly

Annually

(2) Max. SDE _____ mSv _____ (mR)

Monthly

Quarterly

Annually

f. Did any worker's occupational dose exceed the regulatory limits?

[12 VAC 5-481-640]

Yes

No

g. Are there unmonitored workers whose job has changed since last inspection?

Yes

No

A change in job activity put the worker above the 10% occupational dose limit?

Yes

No

h. Are records of personnel exposure, surveys and monitoring evaluation retained?

Yes

No

Note: Records must be kept until the agency terminates license.

i. If a worker declared her pregnancy, did licensee comply with 12 VAC 5-481-710 & 12 VAC 5-481-1040?

Yes

No

19. Radioactive Waste Management:**12 VAC 5-481-910**

- a. Waste storage area properly secured. Yes No
[12 VAC 5-481-840]
- b. Waste storage area(s) properly posted. Yes No
[12 VAC 5-481-860]
- c. Waste storage is located other than the place of possession or use. [L/C] Yes No N/A
- d. Waste containers properly segregated and labeled. Yes No
[12 VAC 5-481-880]
- e. Decay-in-storage (DIS) is approved and procedures are being followed. Yes No
[12 VAC 5-481-960, 12 VAC 5-481-1800, L/C]
- (1) Radionuclides being stored have half-lives of less than 120 days. Yes No
- (2) Radionuclides are segregated for storage according to their half-life. Yes No N/A
- (3) Each nuclide in waste storage is stored for a minimum of 10 half-lives. Yes No
- f. Before waste is disposed, surveys are performed at the surface of each container with the survey meter set to its most sensitive scale. Yes No
Note: Ensure surveys are performed in low background areas.
- h. Effluents from license materials are maintained ALARA. Yes No
- (1) The licensee is monitoring all significant effluent pathways. Yes No
- (2) The fume hood is being checked for adequate airflow and records maintained. Yes No N/A
- (3) Filters are being maintained and replaced according to the manufacturer's instructions and licensee's written procedures. [L/C] Yes No

20. Transportation of Radioactive Material:**12 VAC 5-481-870, 12 VAC 5-481-2980
& 49 CFR 171-178**

- a. Licensee makes shipments of radioactive material. [12 VAC 5-481-2960] Yes No
- (1) Security and all applicable regulations followed. [12 VAC 5-481-2980] Yes No
- b. Shipments are made to common carriers. [12 VAC 5-481-2990] Yes No N/A
- c. Shipments are transported in licensee's private vehicle(s). Yes No N/A
[12 VAC 5-481-2970 & 12 VAC 5-481-2980]

(1) Shipping papers are accessible and available for inspection. Yes No
[49 CFR 177.817(e)]

(2) Driver trained in HAZMAT communications, including loading and unloading radioactive materials.
[49 CFR 177.816 & .842] Yes No N/A

d. No shipments made since last inspection. Yes No

Note: To be completed if shipments were made since last inspection. (E. Through G.)

e. Licensee packages and ships radioactive materials according to regulatory procedures.
[12 VAC 5-481-3070 & 12 VAC 5-481-3080] Yes No N/A

f. Type A package used for shipping and marked "Type A".
[12 VAC 5-481-3070 & 12 VAC 5-481-3080] Yes No

(1) Shipping container normally use to transport radioactive materials.
 Steel "Ammo" Box Aluminum Suitcase Other

g. Package / container meets design requirements.
[49 CFR 173.410 & .415] Yes No

(1) DOT 7A or other authorized packages used for shipping.
[49 CFR 173.415(a)] Yes No

(2) Package properly marked with two labels that include proper shipping name and identification number
("Radioactive material, N.O.S., UN 2928") Yes No

(3) Those packages containing more than 10 mCi of Iodinated byproduct include the letters RQ (Reportable
Quantity). Yes No

(4) Activity per package does not exceed A-1 or A-2 limit.
[49 CFR 173.424] Yes No

(5) Only shipping labels "Radioactive White-I or Radioactive Yellow-II used. Yes No
Note: Yellow-II labels must include the TI (Transport Index). [49 CFR 173.424(d)]

(6) Radiation levels at the external surface of the package for white-I labels are less than or equal to 0.5mR/hr.
[49 CFR 173.441] Yes No

(7) Radiation levels at the external surface of the package for yellow II labels are greater than 0.5 mR/hr but does not
exceed 50 mR/hr. Yes No

(8) Contamination levels at surface of package are checked before shipping? Yes No N/A

(9) All proper shipping requirements are met. Yes No
[49 CFR 172.200-204]

(10) Emergency procedures and response telephone number(s) available. Yes No
[49 CFR 172.201(d)]

(11) Shipping papers are readily accessible during transportation. Yes No

[49 CFR 17177.842(d)]

Note: Papers must be placed in pocket in the door of the driver's side or placed on the passenger seat. If there is no pocket, the driver must place the papers on the driver's seat when he/she is out of the vehicle.

(12) The radioactive materials are secured and properly blocked and braced in transport vehicle. Yes No
[49 CFR 177.834(a) & .842]

21. License Conditions / Tie-downs: [L/C]

a. All license conditions reviewed by VDH Inspector. Yes No

b. Licensee activities are being conducted in accordance with license conditions. Yes No

22. Information Notices:

a. Licensee is receiving the agency information notices and bulletins. Yes No

b. Licensee has taken appropriate action in response to the bulletins and notices. Yes No

23. Exit Meeting at Conclusion of Inspection:

a. Identify and list the individuals in attendance.

b. List those issues discussed at exit meeting.

24. Summary of Violations and Recommendations:



VIRGINIA DEPARTMENT OF HEALTH
Radioactive Materials Program
Inspection Report



12 VAC 5-481 PART XII IRRADIATOR
INSPECTION CHECKLIST

Licensee and Inspector Information

License No.: _____ **Date of Inspection:** _____ **Priority:** _____

Type of Inspection: Announced Unannounced
 Initial Routine Special **Date of Last Inspection:** _____

Licensee (name and address): _____

Inspection

Site Address: _____

Contact Person: _____

Contact Tel No.: _____

Summary of Findings and Actions

- No Violations Cited
 Violation(s) Issued
 Repeat Violations

Next Inspection Date: _____ Normal Reduced Extended

**Justification for Change
 in Inspection Frequency:** _____

Lead Inspector:

Sign Name _____ Date _____

Print Name _____

Accompanying Inspector:

Sign Name _____ Date _____

Print Name _____

Reviewed By:

Sign Name _____ Date _____

Print Name _____

Notes: _____

NOTES (Describe how performance based inspection was completed):

Empty space for notes.

Amendments and Program Changes (Review from last License renewal) 12 VAC 5-481-510, 12 VAC 5-481-520, 12 VAC 5-481-530

a. Amendment #	b. Date:	c. Subject/Items.

3. Inspection History

<p>a. Items of violations cited at last inspection. (1) Previous violation(s) properly corrected. If no, list those violations with an explanation.</p> <p>b. List previous recommendations:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
--	--

4. Organization 12 VAC 5-481-450, 12 VAC 5-481-630, 12 VAC 5-481-2680, 12 VAC 5-481-2700

<p>a. List and identify all individuals in attendance at entrance meeting. Individual 1: Individual 2: Individual 3: Individual 4: Additional:</p> <p>b. Organizational structure meets requirements identified on license. [L/C]</p> <p>c. Mailing address and authorized locations of use are as identified on license? [L/C]</p> <p>d. Briefly describe the licensed material program. (Program structure, management, facilities, materials, etc.)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	--

e. Radiation Safety Officer (RSO) performs the following duties (12 VAC 5-481-450, 12 VAC 5-481-630, 12 VAC 5-481-2680):

- (1) Ensures activities are stopped when considered unsafe. Yes No
- (2) Keeps exposures ALARA. Yes No
- (3) Develop, maintain, distribute and implement up-to-date operating, emergency and ALARA procedures. Yes No
- (4) Ensures that individuals associated with irradiator operations are properly trained and evaluated. Yes No
- (5) Ensures that operations are conducted safely. Yes No
- (6) Ensures non-routine operations are consistent with license limitations, SSD Certificates and the manufacturer's written recommendations and instructions. Yes No
- (7) Analyzes potential safety consequences of non-routine operations before conducting activities. Yes No
- (8) Ensures non-routine operations are performed by the manufacturer or person specifically authorized to perform those operations. Yes No
- (9) Ensures personnel monitoring devices are used properly and exchanged at proper intervals, records are properly maintained, and timely notifications are made. Yes No
- (10) Maintains documentation that unmonitored individuals are not likely to receive, in one year, a dose in excess of 10% of the allowable limits or provide dosimetry. Yes No
- (11) Notify proper authorities of incidents, damage, malfunction of irradiators, fire, loss or theft of licensed materials. Yes No
- (12) Investigate emergencies and abnormal events, identify cause(s), implement appropriate and timely corrective action(s). Yes No
- (13) Perform radiation safety program audits at least every 12 months and develop, implement and document timely corrective actions. Yes No
- (14) Ensure transport of licensed material according to VDH and DOT requirements. Yes No
- (15) Ensure proper disposal of licensed material. Yes No
- (16) Maintain records associated with irradiator operations. Yes No
- (17) Maintain up-to-date license and timely submission of amendment and renewal requests. Yes No
- (18) Ensure when licensee identifies violations or program weaknesses, corrective actions are developed, implemented and documented. Yes No

f. To whom in the organization does the RSO report?

g. Does the RSO have adequate training and experience? (12 VAC 5-481-2680)

**h. Radioactive materials in licensee possession are as authorized in license?
Note: Request a copy of the most recent inventory.**

5. Management Oversight

- a. Management supports ALARA per 12 VAC 5-481-630.** Yes No
- b. Management supports RSO efforts.** Yes No

<p>c. Radiation protection annual audits performed per 12 VAC 5-481-630:</p> <p>(1) Audits conducted by:</p> <p>(2) Areas reviewed:</p> <p>(3) Audit records maintained per 12 VAC 5-481-990.</p> <p>(4) Self identified problems noted.</p> <p>(a) Corrective actions taken.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>d. Performance Evaluation Factors (P.E.F.) reviewed include the following:</p> <p>(1) Senior management involved with radiation safety program and RSO oversight.</p> <p>(2) RSO too busy with other assignments.</p> <p>(3) Sufficient staffing for licensee program.</p> <p>(4) Adequate audits being implemented.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

6. Training Program

<p>a. All operators have received training (i.e., radiation safety, regulatory requirements, practical explanation of the theory and operation for irradiators, on-the-job or simulated training, supervised hands-on experience) and taken a written examination to verify competency and understanding of the subject matter in accordance with their submitted training program. [L/C]</p> <p>List operators:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>b. Operators meet the following requirements of 12 VAC 5-481-2270, 12 VAC 5-481-2830, 12 VAC 5-481-2260, 12 VAC 5-481-2830:</p> <p>(1) Received copies and instruction of Parts IV, X and XII, conditions of license, and operating and emergency procedures;</p> <p>(2) Do operators demonstrate adequate knowledge and understanding of the operating and emergency procedures?</p> <p>(3) Completed irradiator manufacturer's course for operators specific to the irradiator that the applicant intends to use or training course as described in Appendix G of VAREG 'Guidance for 12 VAC 5-481 Part XII Irradiators'.</p> <p>(4) Annual safety reviews and performance evaluations for irradiator operators?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

- c. Individuals who require unescorted access meet the following requirements of 12 VAC 5-481-2270, 12 VAC 5-481-2830, 12 VAC 5-481-2840:**
- (1) Received instruction in Parts I, IV, X and XII? Yes No
- (2) Received copies of and instruction in licensee's operating and emergency procedures? Yes No
- (3) Received instructions (may include subjects described in **Appendix G** of VAREG 'Guidance for 12 VAC 5-481 Part XII Irradiators') and tested in precaution to avoid radiation exposure, procedures listed in 12 VAC 5-481-2840 that they must perform or comply with, and their proper response to alarms? Yes No
- (4) Demonstrated adequate knowledge and understanding of the operating and emergency procedures? Yes No
- d. Annual refresher safety training given per 12 VAC 5-481-2830.** Yes No
- f. Records of training, exams, and refresher training for operators and individuals who require unescorted access maintained for 3 years from termination of employment of individual per 12 VAC 5-481-2930.** Yes No
- f. Annual training provided to all individuals/workers who are likely to receive an occupational radiation dose >100mR/yr and records maintained for 5 years per 12 VAC 5-481-2270.** Yes No
- g. Was HAZMAT training given and records maintained per 49 CFR 172.704?
Note: Required only if transporting a Yellow-III label. Training is required for personnel who prepare, load, unload or transport.** Yes No N/A

7. Notifications and Reports

- a. Since last inspection, any occupational overexposures occurred and reported to the agency per 12 VAC 5-481-1100 and 12 VAC 5-481-1110.** Yes No
(1) If yes, describe the root cause and corrective action taken for each incident.
- b. Since last inspection, any overexposure of individual member of public greater than 100 mrems and was agency notified per 12 VAC 5-481-1100?** Yes No
(1) If yes, describe the root cause and corrective action taken for each incident.

c. Since last inspection, any theft, loss of licensed material or radiological incident occurred and was agency notified per **12 VAC 5-481-1090** and **12 VAC 5-481-1100**.

Yes No

(1) If yes, describe the root cause and corrective actions taken for each incident.

Yes No

Since last inspection, any defect(s) in equipment that could create a substantial safety hazard and was agency notified?

(1) If yes, describe the root cause and corrective action taken for each incident.

Yes No

Since last inspection, any equipment is disabled or fails to function as designed when required to prevent radiation exposure in excess of regulatory limits and was agency notified?

(1) If yes, describe the root cause and corrective action taken for each incident.

Yes No

Since last inspection, any event(s) that prevented immediate protective action necessary to avoid exposure to radioactive materials that could exceed regulatory limits and was agency notified?

(1) If yes, describe the root cause and corrective action taken for each incident.

Yes No

Since last inspection, any unplanned fire or explosion that affects the integrity of any licensed material or device, container, or equipment with licensed material and was agency notified?

(1) If yes, describe the root cause and corrective action taken for each incident.

d. Notifications to the agency for any of the following occurred per **12 VAC 5-481-2940**:

Yes No N/A
 Yes No N/A

(1) Source stuck in unshielded position.

(2) Any fire or explosion in radiation room.

(3) Damage to source racks.

(4) Failure of the cable drive mechanism used to move the source racks.

(5) Inoperability of the access control system.

(6) Detection of radiation source by the product exit monitor.

(7) Detection of radiation contamination attributable to licensed radioactive material.

(8) Structural damage to the pool liner or walls.

(9) Abnormal water loss or leakage from the source storage pool.

(10) Pool water conductivity exceeding 100 microsiemens per centimeter.

e. In any/all of above instances, was agency notification made as required?

Yes No N/A

8. Radiation Dosimetry Program

- | | |
|--|---|
| <p>a. Each film badge, OSL or similar approved device is assigned to and worn by only one individual per 12 VAC 5-481-750, 12 VAC 5-481-760 and 12 VAC 5-481-2850.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>c. Effluents from license materials are maintained ALARA. (12 VAC 5-481-630)</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| <p>d. If appropriate, bioassays are taken, calculated, and recorded.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |

9. Monitoring Records

- | | | | | |
|--|---------------------|---|---|---|
| <p>a. Review of personnel monitoring records, from</p> <p>(1) Max. DDE</p> <p>(2) Max. SDE</p> | <p>mR</p> <p>mR</p> | <p>To</p> <p><input type="checkbox"/> Month</p> <p><input type="checkbox"/> Month</p> | <p><input type="checkbox"/> Quarter</p> <p><input type="checkbox"/> Quarter</p> | <p><input type="checkbox"/> Year</p> <p><input type="checkbox"/> Year</p> |
|--|---------------------|---|---|---|

- | | |
|---|--|
| <p>b. Workers exceeded occupational dose regulatory limits of 12 VAC 5-481-640.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>c. Permanent dosimetry processor is NVLAP certified per 12 VAC 5-481-750.
List Film / OSL Supplier?</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>d. Monitoring reports reviewed by Licensee: [L/C]
<input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Annually</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>e. Film badges must be processed monthly and other personnel dosimeters must be processed at least quarterly per 12 VAC 5-481-750 and 12 VAC 5-481-2850.
(1) If no, circumstances are documented and available for review.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>f. Personnel monitoring records are maintained as follows per 12 VAC 5-481-1040
(Film badge, OSL, or similar approved device – until termination)</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>g. Licensee provides all workers a written report of their annual radiation exposure per 12 VAC 5-481-2280.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>h. Workers exposure records provided within 30 days upon request of employee after termination of employment per 12 VAC 5-481-2280 E.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |

10. Detection of Leaking Sources**a. Detection of leaking sources per 12 VAC 5-481-740 and 12 VAC 5-481-2870:**

(1) Dry-source-storage sealed sources must be tested at least every 6 months.

 Yes No

(a) Test kit model number: Kit Mfg:

(b) Performed by a person approved by VDH, NRC or another Agreement State.

 Yes No

(2) Pool irradiators:

(a) Sources are tested for leakage before put into the pool (licensee performs leak test or has a certificate from a transferor that leak test has been done within 6 months before the transfer)

 Yes No

(b) Water from the pool must be checked for contamination each day the irradiator operates (i.e., either by using a radiation monitor on a pool water circulating system which will alarm above normal radiation levels or by analysis of a sample of pool water with the results of the analysis available within 24 hours).

 Yes No**c. If a leaking source is detected:**

(1) Licensee shall arrange to remove source from service and have it decontaminated, repaired, or disposed of by a VDH, NRC or another Agreement State licensee that is authorized to perform these functions per 12 VAC 5-481-740 and 12 VAC 5-481-2870 or equivalent.

 Yes No

(2) Licensee shall promptly check its personnel, equipment, facilities, and irradiated product for radioactive contamination.

 Yes No

(a) If any personnel are found to be contaminated, was decontamination performed promptly?

 Yes No

(b) If contaminated equipment, facilities or products were found, did the licensee arrange to have them decontaminated or disposed of by a VDH, NRC or another Agreement State licensee that is authorized to perform these functions?

 Yes No

(c) If a pool is contaminated, did the licensee arrange to clean the pool until the contamination levels did not exceed the appropriate concentration in 12 VAC 5-481-3690?

 Yes No

d. Radiation Surveys per 12 VAC 5-481-2860:

(1) Surveys of the area outside the shielding of the radiation room of a panoramic irradiator conducted with the sources in the exposed position before the facility starts to operate.

Yes No

(2) Surveys of the area above the pool of pool irradiators conducted after the sources are loaded but before the facility starts to operate.

Yes No

(3) Additional surveys of the shielding is performed at intervals not to exceed 3 years and before resuming operations after additional of new sources or any modification to the radiation room that might increase dose rates.

Yes No

(4) Water from the irradiator pool, other potentially contaminated liquids, and sediments from pool vacuuming monitored for radioactive contamination before release to unrestricted areas.

Yes No

(5) Resins were monitored in an area with a background level less than 0.05 mrem and surveys did not detect radiation levels above background levels before released for unrestricted use.

Yes No

e. If radiation levels specified in 12 VAC 5-481-2740 are exceeded, was the facility modified to comply with the requirements in 12 VAC 5-481-2740.

Yes No

f. All survey instruments able to detect 0.05 mrem per hour and calibrated at least annually as required by 12 VAC 5-481-750 and 12 VAC 5-481-2860.

Yes No

f. Records are maintained for 3 years per 12 VAC 5-481-1000 and 12 VAC 5-481-2930.

Yes No

11. Receipt and Disposal of Radioactive Material

a. Describe how packages are received. Who receives them?

b. Licensee package receipt procedures in place per 12 VAC 5-481-900.

Yes No

c. Transfer of material as required by 12 VAC 5-481-560.

Yes No

d. Waste disposal as required by 12 VAC 5-481-910.

Yes No

d. Licensee maintains records of the receipt, transfer and disposal of all licensed sealed sources as required by 12 VAC 5-481-100, 12 VAC 5-481-570 and 12 VAC 5-481-2930.

Yes No

d. Malfunctions and defects found during inspection and maintenance checks must be repaired without undue delay per 12 VAC 5-481-2880.

Yes No

- e. Operating and emergency procedures as required by **12 VAC 5-481-2840**. Yes No
- f. Pool water purity as required by **12 VAC 5-481-2890**:
 (1) Pool water purification system is sufficient to maintain conductivity of pool water below 20 microsiemens per centimeter. Yes No
 (2) Pool water conductivity is measured at least weekly. Yes No
- g. Attendance during operation as required by **12 VAC 5-481-2900**:
 (1) Both the irradiator operator and at least one other individual who is trained will be present during operation of an automatic product conveyor system and whenever the product is moved into or out of the radiation room when the irradiator is operated in a batch mode. Yes No
 (2) Panoramic irradiator at which static irradiations are occurring will have a person onsite who has received training on how to respond to alarms. Yes No
 (3) Underwater irradiator will have an operator present at the facility whenever the product is moved into or out of the pool (individuals who move the product into or out of the pool need not be qualified as irradiator operators but must have received training described in **12 VAC 5-481-2830**) Yes No
 (4) Static irradiations may be performed without a person present at the facility. Yes No
- h. Entering and leaving the radiation room as required by **12 VAC 5-481-2910**.
 (1) Panoramic irradiator: upon entering the radiation room after an irradiation, the operator made surveys to determine the source has returned to the fully shielded position. The operator will check functioning of the survey meter with a check source prior to entry. Yes No
 (2) Before exiting from and locking the door to the radiation room of a panoramic irradiator prior to a planned irradiation, the operator:
 (a) Visually inspected the radiation room to verify no one else is in it; Yes No
 (b) Activate a control in the radiation room that only permits the source to be moved from the shielded position if the door is locked within a preset time after setting the control. Yes No
 (3) No one enters the area around the pool of an underwater irradiator during a power failure without using a survey meter unless the over-the-pool monitor is operating with back up power. Yes No
- i. Irradiation of explosive or flammable materials as required by **12 VAC 5-481-2920**:
 (1) Licensee has received prior written approval from VDH. Yes No
 (2) Small quantities of flammable material (flash point below 140°F) in a panoramic irradiator. Yes No
- j. Decommissioning records for storage locations and records of other occurrences are kept in an identified location per **12 VAC 5-481-450 C**.
 (i.e. blueprints, appropriate records, as-built drawings) Yes No

k. Records of radiation and contamination control surveys per **12 VAC 5-481-1000**, **12 VAC 5-481-1010** and **12 VAC 5-481-2930** maintained?

Yes No

13. Independent Survey Measurements by the VDH Inspector

a. Independent confirmatory surveys performed.

(1) Survey instrument used:

(a) Mfg./Make:

(b) Model #:

(c) Serial #:

(d) Last calibration date:

(2) Licensee survey instrument(s)

(a) Mfg./Make:

(b) Model #:

(c) Serial #:

(d) Last calibration date:

(3) Describe inspector instrument readings as compared to licensee instrument readings.

(4) Highest radiation levels for following areas:

(a) unrestricted area _____ (mR/hr)

(b) 30 cm(1 ft) from device _____ (mR/hr)

(c) external surface of device _____ (mR/hr)

(d) 1 meter from device. _____ (mR/hr)

b. Radiation levels in all unrestricted areas less than 2 mR in any one hour, and resulting non-occupational personnel exposure less than 100 mR/yr per **12 VAC 5-481-720** and **12 VAC 5-481-2740**.

Yes No

c. Shielding as required by **12 VAC 5-481-2740**:

(1) Radiation dose rate in areas normally occupied during operation of a panoramic irradiator may not exceed 2 mrem per hour at any location 30 centimeter or more from the wall of the room when the sources are exposed.

Yes No

(2) Radiation dose at 30 centimeters over the edge of the pool of a pool irradiator does not exceed 2 mrem per hour when the sources are in the fully shielded position.

Yes No

(3) Radiation dose rate at 1 meter from the shield of a dry-source-storage panoramic irradiator when the source is shielded does not exceed 2 mrem per hour and at 5 centimeters from the shield does not exceed 20 mrem per hour.

Yes No

14. Posting	
<p>a. Posting required per 12 VAC 5-481-860 including:</p> <p>(1) "Caution- Radioactive Material" signs posted per 12 VAC 5-481-860.</p> <p>(2) "Caution, Radiation Area", "Caution, High Radiation Area" or "Danger, High Radiation Area", or "Grave Danger, Very High Radiation Area" signs posted per 12 VAC 5-481-860.</p> <p>b. The following documents are posted in a conspicuous location, or a summary that states where they are located per 12 VAC 5-481-2260:</p> <p>(1) a copy of Parts I, IV, X, and XII of 12 VAC 5-481, "Virginia Radiation Protection Regulations"</p> <p>(2) The license, license conditions or incorporated documents.</p> <p>(3) Operating and emergency procedures.</p> <p>(4) VDH form, 'Notice to Employees'</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
15. Labeling	
<p>a. Label as required per 12 VAC 5-481-880.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
16. Instructions to Workers:	
<p>a. Are individual workers likely to receive an occupational radiation dose (>1 mSv (100 mR)/year) provided annual training? (12 VAC 5-481-2270)</p> <p>(1) Is training commensurate with potential radiological health protection problems present in the workplace? (12 VAC 5-481-2270)</p> <p>b. Are non-occupationally exposed workers (<1 mSv (100 mR)/year) given training (i.e., housekeeping, security, etc)?</p> <p>(1) Are training records maintained and available?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
17. Transportation of Radioactive Materials	
<p>a. Package/container meets the design requirements of 49 CFR 173.410.</p> <p>b. DOT 7-A performance test records on file per 49 CFR 173.415(a).</p> <p>c. Transportation of licensed material per 12 VAC 5-481-2980</p> <p>d. Surveys taken per 12 VAC 5-481-3060 to verify compliance with radiation and contamination levels prior to offering for transportation?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

18. License Conditions / Tie-downs

<p>a. Were all license conditions reviewed?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>b. Were licensee activities conducted in accordance with license conditions / Tie-Downs?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

19. Bulletins and Information Notices

<p>a. Licensee is receiving the agency information notices. (1) Licensee has taken appropriate action in response to the notices. Note: Inspector will provide copies if the licensee has not received them.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
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20. Exit Meeting at Conclusion of Inspection

<p>a. List and identify the individuals in attendance.</p>	<p>Date Conducted:</p>
<p> </p>	
<p>B. List those issues discussed at the exit meeting.</p> <p> </p> <p> </p> <p> </p> <p> </p>	

21. Violations and Recommendations

<p> </p>



VIRGINIA DEPARTMENT OF HEALTH
Radiological Health Section
Narrative Inspection Report

Academic, Research and Development, and Limited Scope

Licensee and Inspector Information:

License/Registration No.:

Inspection Date:

Licensee (name and address):

Inspection Site Address (authorized use or storage):

Licensee Contact:

Contact Telephone No.:

Date of Last Inspection:

Type of Inspection(s):

Announced

Unannounced

Initial

Routine

Priority:

Next Inspection Date:

Normal

Reduced

Extended

Justification(s) for change in Inspection Sequence:

Summary of Findings and Actions:

[481-110]

Violation(s) Issued

Repeat Violations

No Violations Cited

Lead Inspector:

(Sign Name) _____

Date _____

(Print Name) _____

Inspector:

(Sign Name) _____

Date _____

(Print Name) _____

Reviewed By:

(Sign Name) _____

Date _____

(Print Name) _____

Notes:

NOTES (Describe how performance based inspection was completed):**Amendments and Program Changes (Review from last License renewal)**

a. Amendment #	b. Date:	c. Subject/Items.

Inspection History

a. Items of non-compliance cited at last inspection.
 1. Previous items of non-compliance properly corrected.
 If no, list those items of non-compliance with an explanation.

Yes No
 Yes No N/A

b. List previous recommendations:

Organization

a. List and identify all individuals in attendance at entrance meeting.

Individual 1:

Individual 2:

Individual 3:

Individual 4:

Additional:

b. Organizational structure meets requirements identified on license. [L/C]

Yes No

c. Mailing address and authorized locations of use are as identified on license?
 [L/C]

Yes No

d. Briefly describe the licensed material program.
 (program scope, org. chart, personnel responsibilities, etc.)

e. RSO performs their assigned duties and responsibilities. [L/C]

Yes No

Management Oversight

<p>a. Management supports ALARA per 12 VAC 5-481-630</p> <p>b. Management supports RSO efforts.</p> <p>c. Radiation protection annual audits performed per 12 VAC 5-481-630</p> <p style="margin-left: 20px;">1. Audits conducted by:</p> <p style="margin-left: 20px;">2. Areas reviewed:</p> <p style="margin-left: 20px;">3. Audit records maintained per 12 VAC 5-481-990.</p> <p style="margin-left: 20px;">4. Self identified problems noted.</p> <p style="margin-left: 40px;">(a) Corrective actions taken.</p> <p>d. Performance Evaluation Factors (P.E.F.) reviewed include the following:</p> <p style="margin-left: 20px;">1. Senior management involved with radiation safety program and RSO oversight.</p> <p style="margin-left: 20px;">2. RSO too busy with other assignments.</p> <p style="margin-left: 20px;">3. Sufficient staffing for licensee program.</p> <p style="margin-left: 20px;">4. Adequate audits being implemented.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Facilities, Materials and Equipment

a. List the unsealed radioactive material:

Rec. Date	Isotope	Activity (mCi)	Activity Date	Disp/Tran Date

b. List the sealed sources/devices:

Rec. Date	MFG	Isotope	Model #	S/N	Activity (mCi)	Activity Date	Leak Test Date	Disp/Tra Date

Note: Use additional supplementary inventory sheet if needed.
Request a copy of most recent inventory from licensee.

Training Program

a. Personnel are trained and knowledgeable on the operating and emergency Procedures. [L/C]

Yes No

Identify those individuals interviewed:

Individual 1:

Individual 2:

Individual 3:

Individual 4:

b. Annual refresher training given to personnel likely to be exposed to >100 mrem/yr per 12 VAC 5-48-2270.

Yes No N/A

Personnel Monitoring

a. Dose evaluations or surveys of unrestricted areas are performed and documented to ensure they do not exceed 2 mrem in any one hour or 100 mrem in one year.

Yes No

b. Personnel monitoring is being used per 12 VAC 5-48-760

If no, was an evaluation performed to demonstrate monitoring is not required?

Yes No

Yes No N/A

c. Dosimeter processor is NVLAP certified per 12 VAC 5-48-750.

Yes No N/A

1. List dosimetry supplier: _____

2. Type of dosimetry: OSL Film TLD Other

d. Monitoring reports reviewed by Licensee:

Yes No N/A

Monthly Quarterly Annually

e. Licensee provides all workers a written report of their annual radiation exposure per 12 VAC 5-481-2280

Yes No N/A

f. Upon request of employee after termination of employment, workers exposure records provided within 30 days per 12 VAC 5-481-2280 12 VAC 5-481

Yes No N/A

f. Personnel monitoring records are being maintained per 12 VAC 5-481-2070

Yes No N/A

g. Review of personnel monitoring records, from

To

1. Max. DDE mR Month Quarter Year

2. Max. SDE mR Month Quarter Year

Waste Management	
<p>a. For DIS, is licensee following their procedures. [L/C]</p> <p>b. For sanitary sewage release, is licensee following their procedures. [L/C]</p> <p style="padding-left: 20px;">Were the releases within the concentrations in Appendix E per 12 VAC 5-481-630</p> <p>c. Other approved procedures? [L/C]</p> <p>d. For sealed sources, were they returned to the manufacturer, distributor or an organization authorized by DHFS, the NRC or another Agreement State?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
Independent Survey Measurements by the Department Inspector	
<p>a. Independent confirmatory surveys performed. If yes, complete the following information:</p> <p>1. Survey instrument used:</p> <p style="padding-left: 20px;">(a) Mfg./Make:</p> <p style="padding-left: 20px;">(b) Model #:</p> <p style="padding-left: 20px;">(c) Serial #:</p> <p style="padding-left: 20px;">(d) Last calibration date:</p> <p>2. Licensee survey instrument(s)</p> <p style="padding-left: 20px;">(a) Mfg./Make:</p> <p style="padding-left: 20px;">(b) Model #:</p> <p style="padding-left: 20px;">(c) Serial #:</p> <p style="padding-left: 20px;">(d) Last calibration date:</p> <p>3. Describe inspector instrument readings as compared to licensee instrument readings.</p> <p>4. Highest radiation levels for following areas:</p> <p style="padding-left: 20px;">(a) unrestricted area: _____ (mR/hr)</p> <p style="padding-left: 20px;">(b) locations of use: _____ (mR/hr)</p> <p style="padding-left: 20px;">(c) other areas: _____ (mR/hr)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
Posting	
<p>a. Posting required per 12 VAC 5-48-860</p> <p>1. "Caution- Radioactive Material" signs posted per 12 VAC 5-48-860 Note: "Caution – Radioactive Material" sign need not be posted if levels are less than 0.05 Sv (5 mR/hr) at 30 cm from the sealed source.</p> <p>2. "Caution Radiation Area" sign posted per 12 VAC 5-48-860 Note: "Caution – Radiation Area" sign must be posted if levels are greater than 0.05 Sv (5 mR/hr) at 30 cm from the sealed source.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

<p>b. The following documents are posted in a conspicuous location, or a summary that states where they are located per 12 VAC 5-481-860</p> <ol style="list-style-type: none"> 1. Subchapter III and X of 12 VAC 5-481. 2. The license, license conditions or incorporated documents. 3. Operating procedures <p>c. The following documents are posted in a conspicuous location per 12 VAC 5-481-860</p> <ol style="list-style-type: none"> 1. Emergency procedures. 2. "Notice to Employees" form. 	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
Labeling	
<p>a. Labels are properly attached, legible and contain the following per 12 VAC 5-48-880</p> <ol style="list-style-type: none"> 1. Radiation symbol. 2. "Caution Radioactive Material" 3. Radionuclide(s) present. 4. Estimate of quantity of radioactivity. 5. Date of estimate. 	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
Shipping of Radioactive Materials	
<p>a. Licensee ships their own materials. If yes, licensee adheres to provisions of 12 VAC 5-481-2960</p> <p>b. Shipment records are maintained for 3 years per 12 VAC 5-481-100</p>	<p><input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
Notifications and Reports	
<p>a. Have any occupational overexposure or excessive levels of radiation occurred and were they reported to the department per 12 VAC 5-481-630. If yes, describe the root cause and corrective actions taken for each incident.</p> <p>b. Have any reports of leaking source(s) been made to the department per 12 VAC 5-481-1150.</p> <p>c. Have any theft or loss of licensed material, or radiological incident occurred and was the department notified per 12 VAC 5-481-1100. If yes, describe the root cause and corrective actions taken for each incident.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
License Conditions / Tie-downs	
<p>a. License conditions reviewed.</p> <p>b. Licensee activities conducted in accordance with license conditions/tie-downs.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

Information Notices

<p>a. Licensee is receiving DHFS information notices. Licensee has taken appropriate action in response to the notices. Note: Inspector will provide copies if the licensee has not received them.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
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Exit Meeting at Conclusion of Inspection

<p>a. Identify and list the individuals in attendance.</p>	<p>Date Conducted:</p>
<p> </p>	

<p>b. List those issues discussed at the exit meeting.</p> <p> </p> <p> </p> <p> </p> <p> </p>
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Summary of Items of Non-Compliance and Recommendations

<p> </p>



**VIRGINIA DEPARTMENT OF HEALTH
Radiological Health Section
Narrative Inspection Report**



Commercial Nuclear Pharmacy

License No.:		Inspection Date:	
Licensee (name and address):		Inspection Site Address (authorized use or storage):	
Licensee Contact:		Contact Telephone No.:	
Date of Last Inspection:		Type of Inspection: <input type="checkbox"/> Announced <input type="checkbox"/> Unannounced <input type="checkbox"/> Initial <input type="checkbox"/> Routine	
Priority:	Next Inspection Date: <input type="checkbox"/> Normal <input type="checkbox"/> Reduced <input type="checkbox"/> Extended		
Justification(s) for change in Inspection Sequence:			
Summary of Findings and Actions: [12 VAC 5-481-110] <input type="checkbox"/> Violation(s) Issued <input type="checkbox"/> Repeat Violations <input type="checkbox"/> No Violations Cited			
Notes:			
Lead Inspector: (Sign Name) _____ Date _____ (Print Name) _____			
Inspector: (Sign Name) _____ Date _____ (Print Name) _____			
Reviewed By: (Sign Name) _____ Date _____ (Print Name) _____			

Pharmacy Inspection Report / Checklist

12 VAC 5-481-110

1. Amendments and Program Changes:
(Review from last license renewal)

**12 VAC 5-481-510, 12 VAC 5-481-520
& 12 VAC 5-481-530**

a. Amendment #	b. Date:	c. Subject/Items:
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Note:

2. Inspection History of Licensee's Program:

a. Is this an initial inspection? Yes No

b. Last inspection date at this location:

c. List previous items of non-compliance:

d. Have previous items of non-compliance been properly corrected? Yes No N/A
If no, explain uncorrected items of non-compliance.

e. List previous recommendations:

f. Did licensee address previous recommendation(s)? Yes No N/A
If no, explain.

3. Organization:

12 VAC 5-481-450 & 12 VAC 5-481-470

Note: request organizational chart.

a. Briefly describe licensee organizational structure as it pertains to licensed activities.

b. Organizational structure meets requirements as identified on license. Yes No

c. Radiation Safety Officer (RSO) identified on license. [L/C, 12 VAC 5-481-450] Yes No

(1) Performs duties as required of RSO. (VAREG Appendix H) [L/C] Yes No

(2) To whom does the RSO report? Yes No

(3) The RSO has sufficient access to licensee's senior management? Yes No

(4) Has there been a change in the RSO? Yes No

(5) Was the license amended? Yes No N/A

(6) Does the new RSO meet agency's training requirements? Yes No N/A

d. Has there been a change in the licensee contact person for the agency? Yes No

Note: Confirm through discussions with management and licensee personnel whether changes have occurred in licensee ownership, or in the RSO's authority or duties, that may impact the RSO's ability to safely conduct the licensee's radiation protection program.

e. Identify and record all individuals in attendance at entrance meeting. (attach additional sheets if necessary)

Individual 1:

Individual 2:

Individual 3:

Individual 4:

Individual 5:

4. Scope of Licensee Program:

a. Locations where licensed materials are being used, possessed and stored are as described on the license. Yes No
[L/C, 12 VAC 5-481-490]

(1) Has mailing address changed? [12 VAC 5-481-330] Yes No

(2) Has company ownership changed? [12 VAC 5-481-480 & 12 VAC 481-490] Yes No

(3) If yes, was the agency notified? [12 VAC 5-481-480 & 12 VAC 481-490] Yes No N/A

(4) List location(s) of licensed materials and identify the location of this inspection.

b. Authorized Nuclear Pharmacist (ANP) is named on the license, with appropriate training documentation. Yes No
Note: Cardinal Health may keep a list of approved ANPs. [12 VAC 5-481-470]

(1) Is there a new ANP since the last inspection? Yes No

(2) If yes, does the new ANP meet the agency's training requirements? Yes No N/A
[12 VAC 5-481-470 & L/C]

(3) Was the agency notified within 30 days with an amendment to the license? Yes No N/A
Note: Request a list of names of the RSO, ANPs and AUs.
[12 VAC 5-481-470 & 12 VAC 5-481-520]

c. Are all authorized users (AUs) listed on license? [12 VAC 5-481-450] Yes No

(1) If no, was the agency notified of changes to the AU list? Yes No N/A

(2) Do new AUs meet agency training requirements? [12 VAC 5-481-470] Yes No N/A

d. Personnel interviewed at licensee address during the inspection. (attach additional sheets)

** Indicates those individuals in attendance at exit meeting.

Individual 1:
 Individual 2:
 Individual 3:
 Individual 4:
 Individual 5:

e. Describe the licensed materials program: (type and quantities of licensed materials received, transferred, distributed, redistributed, number of facilities (customers) served, size of staff, etc).

(1) Licensee distributes:

- Photon emitting material Generators Iodinated material (I-131, I-125, or I-123)
 Alpha and Beta emitting material Sealed Sources

(2) The license identifies all radionuclides possessed by licensee. [L/C] Yes No

(3) Radioactive materials in the licensee's possession are within quantity limits indicated on license. [L/C] Yes No

Note: Request a copy of licensee's most recent inventory of radioactive materials, including sealed sources.

5. Management Oversight:

a. Management supports ALARA. [12 VAC 5-481-630] Yes No

b. Management supports RSO efforts. Yes No

c. Are radiation protection annual audits being performed? [12 VAC 5-481-630] Yes No

(1) Who conducts audits?

(2) Scope of audit (areas of the program licensee reviewed):

(3) Audits are conducted at intervals not exceeding 12 months. [12 VAC 5-481-630] Yes No

(4) Audits and review records of the licensee program are being maintained. Yes No

Note: These records must be kept for three years after they are made. [12 VAC 5-481-990]

(5) Were deficiencies found in the program following a self-audit? Yes No

(6) If yes, have the deficiencies been corrected? Yes No N/A

Note: The inspector should look for repeat deficiencies.

(7) Audit records were reviewed by VDH Inspector. Yes No

d. Performance evaluation factors (PEF).

(1) Senior management involved with the radiation protection program and RSO oversight. Yes No

- (2) The RSO has sufficient time to perform his/her radiation safety duties. Yes No
- (3) Licensee has sufficient staffing to support its activities and radiation protection programs. Yes No
- (4) Audits of the licensee program are adequate. Yes No

Note: PEF evaluations are best accomplished by interviewing management, RSO, ANP, AU and other licensee's personnel.

6. Pharmacy Facilities:

**12 VAC 5-481-450, 12 VAC 5-481-470
& 12 VAC 5-481-840**

- a. Has the facility design and/or locations of use changed? [L/C] Yes No
 If yes, has the license been amended? Yes No

Note: The Inspector should request a tour of the licensee's facilities.

- b. The areas for receiving, using and storing licensed materials are secured and adequate for the licensee's activities. Yes No
- (1) There is a clear delineation between restricted and unrestricted areas. Yes No
Note: Check for barriers, postings, security, contamination monitoring stations and worker's instructions.
- (2) Areas assigned as receipt, use, preparation and waste storage are identified. Yes No

- c. The licensee makes reasonable efforts to maintain radiation levels ALARA in areas where licensed activities are performed. [12 VAC 5-481-630] Yes No

- d. Are ventilation systems for iodinations adequate and all required effluent dose limits met? [12 VAC 5-481-630 & L/C] Yes No
Note: Licensee maintains a procedure to ensure ventilation systems are working (e.g., monitoring HEPA filters weekly).

- e. There are adequate numbers of lead shields (L-blocks) in place. Yes No

- f. Generators are housed in a separate room. Yes No N/A
 If no, are generators properly shielded and isolated to keep radiation levels ALARA? Yes No N/A

7. Survey Equipment And Instrumentation:

- a. There are sufficient numbers of portable and fixed monitoring equipment for the materials authorized by the license. [L/C] Yes No
- (1) Do survey meters meet the agency's criteria? [12 VAC 5-481-750] Yes No
- (2) Calibration records are maintained for each fixed and portable monitor. [12 VAC 5-481-1000] Yes No

(3) Who performs annual calibrations of licensee's equipment?

- In-house Authorized outside vendor(s):

Note: Make list of monitoring equipment, check and record all pertinent information pertaining to the instrument calibrations, serial #, etc.

b. Are procedures in place to identify, evaluate, and report equipment safety component defects? Records are kept for 5 years.
[12 VAC 5-481-450, L/C] Yes No

Note: Inquire about basic components of licensee's equipment where a failure or defect has been found (voluntary report to the agency). If left unattended, the defects could become substantial safety hazards.

c. Dose calibrators for photon-emitters. [12 VAC 5-481-470] N/A

(1) Constancy checked each day prior to assay of patient dosages. $\pm 10\%$ Yes No

Note: Dedicated check source for this procedure must be used.

(2) Linearity checked at installation and quarterly. $\pm 10\%$ Yes No

(3) Geometry dependence checked at installation. $\pm 10\%$ Yes No

Note: Must be checked against volumes and configurations. (volumes dispensed and syringe sizes)

(4) Accuracy checked at installation and yearly. $\pm 10\%$ Yes No

Note: If the dose calibrator has been repaired, relocated or adjusted, all appropriate tests listed above must be repeated. Results must be within $\pm 10\%$ before putting the calibrator back in use.

d. Dose measurements for beta- and alpha-emitters. [12 VAC 5-481-470] N/A

(1) Calibrated with each isotope used by licensee. Yes No

(2) Constancy checked each day prior to assay of patient dosages. $\pm 10\%$ Yes No

(3) Geometry dependence checked at installation. $\pm 10\%$ Yes No

(4) Accuracy checked at installation and yearly. $\pm 10\%$ Yes No

(5) Linearity checked at installation and quarterly. $\pm 10\%$ Yes No

(6) Dose measurement procedure available and in use. [L/C] Yes No

Note: If the calibrator is repaired, adjusted or relocated, all tests mentioned above must be repeated. If any test exceeds $\pm 10\%$, the calibrator must be repaired or replaced.

8. Surveys And Contamination Control:

12 VAC 5-481-750

a. Are routine surveys performed for radiation levels and removable contamination?
[L/C] Yes No

(1) Are area ambient surveys performed daily and records maintained? Yes No

[12 VAC 5-481-750 & 12 VAC 5-481-1000]

(2) Are contamination surveys performed and records maintained? Yes No

[12 VAC 5-481-750 & 12 VAC 5-481-1000]

(3) Are radiopharmaceutical preparation areas surveyed after each run? [L/C] Yes No

(4) Are storage and unrestricted areas surveyed weekly? [L/C] Yes No

b. Is proper equipment being used to detect contamination and measure radiation levels?
[L/C] Yes No

(1) Identify licensee's meter(s) used for ambient radiation level surveys.
Note: check meter type, model, serial #, calibration records and batteries.

(2) Identify licensee's instrument(s) used for detecting removable contamination.
Note: check instrument type, model, serial #, calibration records.

c. Corrective actions are implemented and documented when excess radiation or contamination levels are detected. Yes No N/A

(1) An action level for radiation levels is established and used. [L/C] Yes No

(2) An action level for removable surface contamination is established and used.
[L/C] Yes No

9. Sealed Sources and Leak Tests:

12 VAC 5-481-740

a. A leak test is performed on each sealed source at 6 month intervals or as specified in its SSD Certificate.
[12 VAC 5-481-740] Yes No

(1) Leak tests performed as described in the license. [L/C] Yes No

(2) Leak test records are maintained for three years. Yes No

(3) Was any source found leaking since the last inspection? [12 VAC 5-481-1150]
If yes, was the agency notified? Yes No

b. Records are available showing receipts of each sealed source.
[12 VAC 5-481-100, 12 VAC 5-481-570 & 12 VAC 5-481-980] Yes No

c. Sealed sources are physically inventoried every six months. Yes No

10. Radioactive Materials Use And Control:

a. Radioactive materials stored in an unrestricted area are secured from unauthorized access to or removal from the area.
[12 VAC 5-481-840] Yes No N/A

b. Radioactive materials in a controlled unrestricted area, but not in storage, are under surveillance at all times.
[12 VAC 5-481-840] Yes No N/A

c. Are procedures available for receiving and opening packages? [12 VAC 5-481-900]	<input type="checkbox"/> Yes	<input type="checkbox"/> No
d. Are restricted and unrestricted areas delineated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
e. Licensed radioactive materials are transferred only to authorized recipients. [12 VAC 5-481-470 & 12 VAC 5-481-560]	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Records of receipt and transfer of radioactive materials are maintained.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Note: Review licensee's most current inventory. [12 VAC 5-481-100 & 12 VAC 5-481-570]		
f. Do employees use safe handling practices when working with radiopharmaceuticals? (e.g., lab coats, disposable gloves, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

11. Instructions to Workers: **12 VAC 5-481-2260 & 12 VAC 5-481-2270**

a. All individuals / workers who are likely to receive an occupational radiation dose [>1mSv (100mR)/year] are informed of their exposures. [12 VAC 5-481-2280]	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
(1) Annual training is provided to employees who are projected to exceed 100 mR/year. [12 VAC 5-481-2270]	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
(2) Required records are maintained for three years. [12 VAC 5-481-100]	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
b. Other workers are given training as needed. [12 VAC 5-481-450, L/C] (e.g., radiopharmacy technicians, courier/drivers of licensee's delivery vehicle, and ancillary personnel.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
(1) Training records are maintained and available for agency review.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
(3) Workers are knowledgeable of applicable parts of 12 VAC 5-481 'Virginia Radiation Protection Regulations', license conditions and licensee's operating and emergency procedures.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
c. Hazmat training is provided for transportation personnel. [49 CFR 172.700] (e.g., courier/drivers of licensee's delivery vehicle)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A

12. Staff Training Program:

a. Is adequate ANP supervision provided to employees who handle radiopharmaceuticals? [L/C]	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
b. List personnel trained to do specialized services, such as instrument calibrations and leak testing. [L/C]			

c. Training course approved by the agency. (Appendix G, VAREG) Yes No N/A

(1) Instructor's name and qualifications:

(2) List subjects/topics covered:

(4) List individuals who are trained as an authorized user.

Note: Request training records for each authorized user.

d. List all trained personnel that have been approved in writing by the RSO. [L/C]

(1) RSO retains documentation of training. Yes No

(2) Inspector observed AU performing licensed activities. Yes No N/A

(3) Are any AUs authorized to perform non-routine maintenance on dose calibrators? Yes No

If yes, list the individual(s) and review the documented training and procedures used.

(4) Is the AU knowledgeable and familiar with licensee's operating and emergency procedures?

Yes No

13. Notification and Reports:

12 VAC 5-481-2280

a. Did the licensee provide monitored users with an annual written report of their occupational exposure?

[12 VAC 5-481-2280]

Yes No

(1) Occupational radiation exposure reports for monitored personnel are being maintained? Yes No

(2) At termination of employment, are a worker's exposure records available upon request?

[12 VAC 5-481-2280]

Yes No

b. Has any licensed material been lost or stolen since the last inspection?

[12 VAC 5-481-1090]

Yes No

c. Has there been a reportable incident since the last inspection? [12 VAC 5-481-1100]

If yes, describe the root cause and corrective actions taken.

Yes No

d. Have any occupational overexposures or excessive levels of radiation been reported to the agency?

[12 VAC 5-481-1110]

Yes No

e. The RSO and all authorized users are aware of and have access to the agency's emergency telephone number.

Note: Agency 24-hour emergency (804) 674-2400 or VDEM (800) 468-8992

Yes No

14. Posting and Labeling:**12 VAC 5-481-860, 12 VAC 5-481-880
& 12 VAC 5-481-2260**

a. Is posting required? [12 VAC 5-481-860 & 12 VAC 5-481-870] Yes No
Note: "Caution – Radiation Area" sign does not need to be posted if the radiation levels are less than 0.05 Sv (5 mR/hr) at 30 cm from the source. "Caution – Radioactive Materials" sign must be posted in each area or room in which licensed material exceeding 10 times the quantity listed in 12 VAC 5-481-3700 is used or stored.

- (1) "Caution—Radioactive Material" signs posted where required. [12 VAC 5-481-860] Yes No N/A
(2) "Caution—Radiation Area" sign posted as required. Yes No N/A
[12 VAC 5-481-850 & 12 VAC 5-481-860]
(3) All radioactive material transport containers are labeled and legible. Yes No
[12 VAC 5-481-880]

b. The agency's "Notice to Employees" is posted in an appropriate area. Yes No
[12 VAC 5-481-2260]

b. The agency's rules, license, notice of items of non-compliance and applicable sections of 12 VAC 5-481 'Virginia Radiation Protection Regulations' are posted, or a notice of availability is posted for employee review. [12 VAC 5-481-2260] Yes No

c. Are there any exemptions to posting [12 VAC 5-481-870] or labeling [12 VAC 5-481-890] requirements? Yes No

e. Is each transport radiation shield (e.g., pig) labeled with the radiation symbol and the words "Caution Radioactive Material"? Yes No
[12 VAC 5-481-470]

f. Is each syringe, vial, or other container (e.g., generator, ampule) used to hold radioactive drugs labeled with the radiation symbol, the words "Caution Radioactive Material" and an identifier which correlates to the transport radiation shield? Yes No
[12 VAC 5-481-470]

15. Independent and Confirmatory Measurements:

a. Inspector performed independent surveys. Yes No

If yes, record:

- (1) Highest radiation level in unrestricted areas. (mR)/hr
(2) Highest radiation level in restricted areas. (mR)/hr

f. Did any worker's occupational dose exceed the regulatory limits? [12 VAC 5-481-630]	<input type="checkbox"/> Yes	<input type="checkbox"/> No
g. Are there unmonitored workers whose job has changed since the last inspection to put the worker(s) above 10% of the occupational dose limit?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
h. Are records of personnel exposure, surveys and monitoring evaluation retained? Note: Records must be kept until the agency terminates their license.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
i. If a worker declared her pregnancy, did the licensee comply with 12 VAC 5-481-710 & 12 VAC 5-481-1040?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
17. Radioactive Waste Management:		12 VAC 5-481-910
a. Waste received from customers is surveyed and checked for removable contamination. Note: Any contaminate readings of 200 mR/hr or above must be reported to the agency.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
b. Waste storage. [12 VAC 5-481-910] [L/C]		<input type="checkbox"/> N/A
(1) Decay-in-storage is approved and procedures are being followed. [L/C]	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(2) All radionuclides being stored have half-lives less than 120 days.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(3) Radionuclides are segregated for storage according to their half-life.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(4) Each nuclide in waste storage is stored for a minimum of 10 half-lives.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(5) Waste storage area is properly secured. [12 VAC 5-481-840]	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(6) Waste storage area is properly posted. [12 VAC 5-481-860]	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(7) Waste containers are properly labeled. [12 VAC 5-481-880]	<input type="checkbox"/> Yes	<input type="checkbox"/> No
c. Before waste is disposed, surveys are performed at the surface of each container with the survey meter set to its most sensitive scale.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
d. Records of disposal are maintained.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
e. Effluents from licensed materials are maintained ALARA.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(1) The fume hood is being checked for adequate airflow.	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
(2) Filters are being maintained and replaced according to the manufacturer's instructions and licensee's written procedures. [L/C]	<input type="checkbox"/> Yes	<input type="checkbox"/> No
18. Transportation of Radioactive Material:		12 VAC 5-481-2980, 12 VAC 5-481-3070 & 49 CFR 171 -178

<p>a. Licensee makes shipments of radioactive material. [12 VAC 5-481-2960] Security and all applicable regulations followed. [12 VAC 5-481-2980]</p>	<input type="checkbox"/> Yes <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> No
<p>b. Shipments are made to common carriers. [12 VAC 5-481-2990]</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>c. Shipments are transported in the licensee's private vehicle(s). [12 VAC 5-481-2970] Driver trained in HAZMAT communications, including loading and unloading radioactive materials. [49 CFR 177.816 & .842]</p>	<input type="checkbox"/> Yes <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> No
<p>d. Licensee packages and ships radioactive materials according to regulatory procedures. [12 VAC 5-481-2980 & 12 VAC 5-481-3080]</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>e. Type A package used for shipping is marked "Type A". [12 VAC 5-481-2980] What shipping container is normally used to transport radioactive materials? <input type="checkbox"/> Steel "Ammo" Box <input type="checkbox"/> Aluminum Suitcase <input type="checkbox"/> Other:</p>	<input type="checkbox"/> Yes <input type="checkbox"/> Other:	<input type="checkbox"/> No
<p>f. Package / container meets design requirements. [49 CFR 173.410 & .415]</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>(1) DOT 7A or other authorized packages are used for shipping. [49 CFR 173.415(a)]</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>(2) Packages are properly marked with two labels that include proper shipping name and identification number. ("Radioactive material, n.o.s., UN 2928")</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>(3) Packages containing more than 10 mCi of iodinated byproduct include the letters RQ (Reportable Quantity).</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>(4) Activity per package does not exceed A-1 or A-2 limit. [49 CFR 173.424]</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>(5) Only shipping labels Radioactive White-I or Radioactive Yellow-II are used. Note: Yellow-II labels must include the TI (Transport Index). [49 CFR 173.424(d)]</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>(6) Radiation levels at the external surface of the package for white-I labels are less than or equal to 0.5mR/hr. [49 CFR 172.403]</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>(7) Radiation levels at the external surface of the package for yellow-II labels are greater than 0.5 mR/hr but do not exceed 50 mR/hr. [49 CFR 172.403]</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>(8) Contamination levels at the surface of the package are checked before shipping and on return from customers.</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>(9) All proper shipping requirements are met (shipper's name, RQ, description of shipment, hazard class, UN number, nuclide, activity category label, TI, etc.). [49 CFR 172.200-204]</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No

(10) Emergency procedures and response telephone number(s) are available. Yes No
[49 CFR 172.604]

(11) Shipping papers are readily accessible during transportation. [49 CFR 177.817(e)] Yes No
Note: Papers must be placed in the pocket of the driver's side door or placed on the passenger seat. If there is no pocket, the driver must place the papers on the driver's seat when he/she is out of the vehicle.

(12) Special form materials are shipped. Yes No

(13) Vehicle is placarded as required. (Yellow III, if TI > 1.0). [49 CFR 172.504(a)] Yes No N/A

(14) Radioactive materials are secured and properly blocked and braced in transport vehicle.
[49 CFR 177.834(a) & .842(d)] Yes No

(15) A QA program for packaging is in place. [L/C] Yes No

19. License Conditions / Tie-downs:

a. All license conditions were reviewed by VDH Inspector. Yes No

b. Licensed activities are being conducted in accordance with license conditions. Yes No

20. Bulletins and Information Notices:

a. Licensee is receiving the agency information notices and bulletins. Yes No

b. Licensee has taken appropriate action in response to the bulletins and notices. Yes No

21. Exit Meeting at Conclusion of Inspection:

a. Identify and list the individuals in attendance.

b. List the issues discussed at the exit meeting.

22. Summary of Items of Non-Compliance and Recommendations:

--



**Commonwealth of Virginia Department of Health
Radiation Protection Program
Inspection Report**



Sealed Sources & Devices

Licensee and Inspector Information

License No.:

Inspection Date:

Licensee (name and address):

Inspection Site Address (authorized use):

Licensee Contact (RSO):

Contact Telephone No.:

Date of Last Inspection:

Type of Inspection(s):

Priority:

Next Inspection Date:

Normal

Reduced

Extended

Justification(s) for change in Inspection Sequence

Summary of Findings and Actions

[12 VAC 5-481-110]

No Violations Cited

Violation(s) Issued

Repeat Violations

Lead Inspector:

(Sign Name) _____

Date _____

(Print Name) _____

Accompanying Inspector:

(Sign Name) _____

Date _____

(Print Name) _____

Reviewed By:

(Sign Name) _____

Date _____

(Print Name) _____

Notes:

Sealed Sources Inspection Report /Checklist

1. Amendments and Program Changes:

12 VAC 5-481-530

(Review from last License renewal)

a. Amendment #

b. Date:

c. Subject/Items.

Note:

2. Organization:

12 VAC 5-481-450

a. Briefly describe licensee organizational structure pertaining to licensed activities.

b. Organizational structure meets requirements as identified on license. Yes No

c. Radiation Safety Officer (RSO) identified on license. [L/C] Yes No

d. Has there been a change in RSO? Yes No
 If yes, has the license been amended? Yes No

e. RSO fulfills duties as required. [L/C] Yes No

f. To whom in the organization does the RSO report?

g. The RSO has sufficient access to licensee's senior management? Yes No

h. The RSO has sufficient authority to manage the licensee's radiation safety program? Yes No

i. Has ownership changed? Yes No N/A
 If yes, was the agency notified? Yes No

Note: Confirm through discussions with management and licensee personnel whether changes have occurred in licensee ownership, changes in the RSO authority or duties that may impact his/her ability to safely conduct the licensee's radiation protection program.

3. Scope of License Program

a. Briefly describe the licensed material program. (who, what, when, how things are done, etc)

List all location(s) inspected.

b. List individuals interviewed during the inspection.

** Indicates those individuals in attendance at exit meeting

Individual:

Individual:

Individual:

c. Inventory of Radioactive Material

Source / Device Mfg.	Receipt	Disposal/ Transfer	Model #	Isotope	Activity (mCi)	Serial #	Leak Test

Note: Request a copy of the licensee's most recent inventory of radioactive material.

Note: Attach supplementary inventory sheet if needed.

d. Does the licensee maintain a utilization log? [L/C] Yes No N/A

Note:

4. Management Oversight:

a. Management supports ALARA. [12 VAC 5-481-630] Yes No

b. Management supports RSO efforts. Yes No

c. Are the radiation protection annual audits being performed? Yes No

If Yes, continue with this section. [12 VAC 5-481-630]

Describe scope of licensee's audits:

Are previous audit records being maintained as required? [12 VAC 5-481-990] Yes No

Did the VDH Inspector review licensee audit records? Yes No

d. Did licensee find any program deficiencies during the audit(s)? Yes No

If yes, describe corrective actions taken.

Note: look for repeated deficiencies.

e. Performance evaluation factors (P.E.F.).

Senior Management involvement with radiation safety program and RSO oversight. Yes No

The RSO is too busy with other assignments. Yes No

Sufficient staffing for licensee program. Yes No

Adequate audits are being implemented.

Yes No

5. Inspection History

- a. Is this an initial inspection by VDH? Yes No
- b. Last inspection date.
- c. List previous items of non-compliance cited at last inspection.
- d. Have previous items of non-compliance been properly corrected? Yes No N/A
If no, list those items of non-compliance not corrected with an explanation.
- e. List previous recommendations.

6. Staff Training & Instructions for Workers:

- a. Are workers who are likely to receive or exceed an occupational dose of 100 mR in a year given annual training? [12 VAC 5-481-2280] Yes No N/A
- b. Training for sealed source Authorized Users (AU) provided by licensee as described in application. [L/C] Yes No
- c. Was the licensee's trainer/instructor qualified as described by the license application? [L/C] Yes No N/A
- d. All Authorized Users have been approved in writing by the RSO. (request and attach list of authorized users) [L/C] Yes No N/A
- e. Documentation of authorized user training is available for agency review. [L/C] Yes No
- f. During the agency inspection, workers were interviewed and observed using sealed sources. Yes No
If yes, briefly describe who was interviewed and what was observed or demonstrated.
- g. Do workers have an adequate understanding of the procedures and rules for the safe use of radioactive materials? Yes No
- h. Are individual(s) authorized to perform maintenance on sealed source device(s)? Yes No N/A
If yes, list the individual(s) and review the documented training and procedures used.
- i. Do the users have a copy of 12 VAC 481, 'Virginia Radiation Protection Regulations' available to them? Yes No

7. Posting & Labeling:**12 VAC 5-481-860, 12 VAC 5-481-880,
12 VAC 5-481-2260****a. Is posting required?**

[12 VAC 5-481-870]

 Yes No

Note: "Caution - Radiation Area" sign is required to be posted if the levels are greater than 0.05 Sv (5 mR/hr) at 30 cm from the container surface.

"Caution- Radioactive Material" signs posted if required.

[12 VAC 5-481-860]

 Yes No N/A

"Caution Radiation Area" sign posted if required.

[12 VAC 5-481-860]

 Yes No N/A**b. Is the VDH "Notice to Employee" posted in an appropriate area(s)?**

[12 VAC 5-481-2260]

 Yes No**c. 12 VAC 5-481 Parts IV and X, operating procedures and license are posted, or a posting indicating where these documents can be reviewed?**

[12 VAC 5-481-2260]

 Yes No**d. Are the emergency procedures posted?** Yes No**e. All labels for device containers are properly attached and legible.**

[12 VAC 5-481-880]

 Yes No

Note: They must include symbols, isotope, activity, etc.

8. Leak Test**12 VAC 5-481-740****a. Leak test performed at 6 months intervals or according to the SSD?**

[12 VAC 5-481-740 A]

 Yes No**b. Are wipe tests performed by the licensee?** Yes No

Kit Mfg.:

Test kit model number:

The VDH inspector observed a user taking leak test samples?

 Yes No**c. Licensee is authorized to perform own leak test analysis.**

[12 VAC 5-481-740 C]

 Yes No

VDH inspector reviewed training documentation for individual(s) authorized to perform the leak tests analysis

 Yes No

If (c) is yes, are procedures followed as described in Criteria of Appendix J of VAREG EPI 720-L ?

Yes No

d. Leak test results are available for the agency to review for a period of 5 years.

[12 VAC 5-481-1010]

Yes No

e. Leak test results are reported in Becquerels or Microcuries.

[12 VAC 5-481-1010]

Yes No

f. Report of leaking source made to the agency since last inspection?

[12 VAC 5-481-1150]

Yes No

9. Facilities, Materials and Survey Equipment:

12 VAC 5-481-450, 12 VAC 5-481-750,

12 VAC 5-481-840

a. Describe use and storage area(s) of sealed source(s).

Same description/ diagram in license application. [L/C]

Yes No

Sealed Sources, not in storage, are secured against unauthorized removal from an unrestricted area.

[12 VAC 5-481-840]

Yes No

Does licensee possess or have access to a survey meter? [L/C]

Yes No

Calibration of survey instrument(s) at intervals not exceeding 12 months.

[12 VAC 5-481-750]

Yes No

b. Does the licensee calibrate their survey meter(s)? [L/C]

Yes No

If yes, list those individuals and their training who perform independent survey calibrations.

Calibration records retained for three years.

Yes No N/A

c. Surveys & controls are in place to ensure the public dose will not exceed [100 mR/year or 2mR/hr in any one hour]?

Yes No

Survey records or calculations are retained for three years.

Yes No

Note: To ensure public dose does not exceed allowable limits, the licensee may demonstrate compliance by calculation method in "Appendix I", VAREG EPI 720-L?

10. Operating & Emergency Procedures:

a. Sealed sources and devices are used in accordance with their SSD certification?

Yes No

b. Any changes in O&E procedures since last inspection?

Yes No

Where changes authorized by the agency? If yes, describe the changes.

Yes No N/A

11. Receipt, Transfer & Accountability of Sealed Source(s):

12 VAC 5-481-100,
12 VAC 5-481-570,
12 VAC 5-481-900

a. Describe how packages are received. Who receives them?

b. Does the licensee have package receipt procedures in place? Yes No
[12 VAC 5-481-900]

Records are being kept, showing the receipt of each sealed source? Yes No
[12 VAC 5-481-100, 12 VAC 5-481-570]

c. All sealed sources are physically inventoried every 6 months. [L/C] Yes No

Records of inventory results maintained. Yes No

d. Transfer of sealed source(s) as authorized to specifically licensed recipient? Yes No N/A
[12 VAC 5-481-560]

Disposal of sealed sources as authorized. [L/C] [12 VAC 5-481-910] Yes No

e. Records of receipts, transfers and disposals of licensee's radioactive material are maintained for three years for agency's review? [12 VAC 5-481-100, 12 VAC 5-481-570] Yes No

12. Independent Survey Measurements by the VDH Inspector:

a. Did inspector perform independent confirmatory surveys? Yes No

b. Survey instrument used:

Mfg./Make:

Model #:

Serial #:

Last calibration date:

c. Licensee survey instrument(s): (if available)

Mfg./Make:

Model #:

Serial #:

Last calibration date:

d. Describe inspector instrument readings as compared to licensee instrument readings.

e. Independent meter measurements:

Highest radiation level in unrestricted area? (mR)/hr

Highest radiation's level in restricted area? (mR)/hr

Other areas: (mR)/hr

f. Radiation level in all unrestricted areas is less than 0.02 mSv/hr (2 mR/hr) in any one-hour and less than 100 mR/yr.
 Yes No

13. Personnel Monitoring:

**12 VAC 5-481-750,
12 VAC 5-481-760**

a. Is dosimetry required? [12 VAC 5-481-760] Yes No

b. Is dosimeter provided to workers? Yes No

Film TLD OSL Other

Frequency of dosimeter reports? Monthly Quarterly Other:

Dosimetry Supplier/ Processor.
Processor is NVLAP certified. [12 VAC 5-481-750] Yes No

c. Monitoring reports reviewed by licensee? [L/C] Yes No

Monthly
 Quarterly
 Annually

d. Personnel monitoring records recorded on agency form or equivalent method? Yes No N/A

Dosimetry results are reported in Sv or Rem? [12 VAC 5-481-980] Yes No

e. Review of personnel monitoring records, from _____ to _____
Max. DDE mR Month Quarter Year
Max. SDE mR Month Quarter Year

f. Did any workers occupational dose exceed regulatory limits? Yes No
[12 VAC 5-481-640]

g. Are Direct Reading Dosimeters used?

Yes No

Dosimeter Mfg.:

Model / Serial Number:

Dose Range

mR

Rads

h. Are records of personnel occupational dose being retained?

Yes No

[12 VAC 5-481-1040]

Note: Must keep until VDH or licensee terminates license.

14. Notifications and Reports:

**12 VAC 5-481-1090, 12 VAC 5-481-1100,
12 VAC 5-481-1110**

a. Did the licensee provide all sealed source users a written report of their annual radiation exposure?

[12 VAC 5-481-2280 B]

Yes No N/A

Required monitoring records are maintained?

[12 VAC 5-481-1040]

Yes No

b. Have any theft or losses of licensed material occurred since the last inspection?

[12 VAC 5-481-1090]

Yes No

c. Have there been any reportable incidents since the last inspection?

[12 VAC 5-481-1100, 12 VAC 5-481-1110]

Yes No

If yes, describe the root cause and corrective actions taken for each incident.

Describe any unusual events or occurrences since the last inspection.

d. Have any occupational overexposure or excessive levels of radiation been reported to the agency?

[12 VAC 5-481-11100, 12 VAC 5-481-11110]

Yes No

15. Transportation of Radioactive Materials:**12 VAC 5-481-2980 &
49 CFR 171-178**

- a. Licensee makes shipments of radioactive material? Yes No
Security and all applicable regulations followed? [12 VAC 5-481-2980] Yes No
- b. Shipments are made through common carriers? Yes No
- c. Shipments are transported in licensee private vehicle(s)? Yes No
- d. Are both methods b. and c. are used? Yes No
- e. Were shipments made since the last inspection? Yes No

The following items are to be completed if shipments were made since last inspection

- a. Devices packaged and shipped according to DOT regulations. Yes No
Package type used for shipping?
- b. Package / container meets design requirements? [49 CFR 173.410] Yes No
- DOT 7-A performance test records on file? [49 CFR 173.415 (a)] Yes No N/A
- Package labeled properly (yellow II), TI, nuclide, activity, etc.)? Yes No N/A
- Activity per instrument does not exceed A-1 limit. [49 CFR 173.424 (b)] Yes No
- Activity per package does not exceed A-1 limit. [49 CFR 173.424] Yes No
- All proper shipping requirements are met (shipper's name, description of shipment, hazard class, UN number, nuclide, RQ, activity category label, TI, etc.)? [49 CFR 172.200-204] Yes No N/A
- Emergency procedures and response telephone number(s) available? [49 CFR 172.201 (d)] Yes No N/A
- Shipper papers readily accessible during transportation? [49 CFR 177.81 (e)] Yes No N/A
- Package is blocked, braced and secured? [49 CFR 177.82 (d)] Yes No N/A
- Special Form Sources Certificate, Certificate of Compliance and performance test records on file? [49 CFR 173.476 (a)] Yes No N/A
- Vehicle placarded as required (Yellow III)? [49 CFR 172.504 (a)] Yes No N/A

Proper Over-packs used and labeled? [49 CFR 173.25] Yes No N/A

Hazmat training? [49 CFR 172.704] Yes No N/A

16. License Conditions / Tie-downs:

a. All license conditions reviewed? Yes No

Licensee activities were conducted in accordance with license conditions? Yes No

17. Information Notices:

a. The licensee is receiving VDH information notices? Yes No

Licensee has taken appropriate action in response to the bulletins and notices? Yes No

18. Exit Meeting:

a. Identify and list the individuals in attendance. Date Conducted:

Note:

b. List those issues discussed at the exit meeting.

19. Summary of Items of Non-Compliance and Recommendations:

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VIRGINIA DEPARTMENT OF HEALTH
Radioactive Materials Program
Inspection Report



SELF SHIELDED IRRADIATOR CHECKLIST

Licensee and Inspector Information

License No.:	Date of Inspection:	Priority:
Type of Inspection:	Announced <input type="checkbox"/> Unannounced <input type="checkbox"/> Initial <input type="checkbox"/> Routine <input type="checkbox"/> Special <input type="checkbox"/>	Date of Last Inspection:

Licensee (name and address):

Inspection

Site Address:

Contact Person:

Contact Tel No.:

Summary of Findings and Actions

- No Violations Cited
 Violation(s) Issued
 Repeat Violations

Next Inspection Date: Normal Reduced Extended

**Justification for Change
in Inspection Frequency:**

Lead Inspector:

Sign Name _____ Date _____

Print Name _____

Accompanying Inspector:

Sign Name _____ Date _____

Print Name _____

Reviewed By:

Sign Name _____ Date _____

Print Name _____

Notes:

NOTES (Describe how performance based inspection was completed):

Amendments and Program Changes (Review from last License renewal)

a. Amendment #:	b. Date:	c. Subject/Items.
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Inspection History

<p>a. Items of Non-Compliance cited at last inspection. 1. Previous items of non-compliance properly corrected. If no, list those items of non-compliance with an explanation.</p> <p>b. List previous recommendations:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
---	--

Organization

<p>a. List and identify all individuals in attendance at entrance meeting. Individual 1: Individual 2: Individual 3: Individual 4: Additional:</p> <p>b. Organizational structure meets requirements identified on license. [L/C]</p> <p>c. Mailing address and location of use identified on license? [L/C]</p> <p>d. Briefly describe the licensed material program. (Program structure, management, facilities, materials, etc...)</p> <p>e. Radiation Safety Officer (RSO) performs his/her duties as prescribed by management. [L/C]</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Management Oversight	
<p>a. Management supports ALARA per 12 VAC 5-481-630.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. Management supports RSO efforts.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>c. Radiation protection annual audits performed per 12 VAC 5-481-630.</p> <p>1. Audits conducted by:</p> <p>2. Areas reviewed:</p> <p>3. Audit records maintained per 12 VAC 5-481-990.</p> <p>4. Self identified problems noted.</p> <p style="padding-left: 20px;">(a) Corrective actions taken.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>d. Performance Evaluation Factors (P.E.F.) reviewed include the following:</p> <p>1. Senior management involved with radiation safety program and RSO oversight.</p> <p>2. RSO too busy with other assignments.</p> <p>3. Sufficient staffing for licensee program.</p> <p>4. Adequate audits being implemented.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
Training Program	
<p>a. AUs have received training on irradiator use in accordance with their submitted training program. [L/C]</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. Annual refresher training given to personnel likely to be exposed to >100 mrem/yr per 12 VAC 5-481-2270.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>c. Do the AU's demonstrate adequate knowledge and understanding of the operating and emergency procedures? (Example questions: Source not returning, interlock failure, fire, etc...)</p> <p>Identify those individuals interviewed: Individual 1: Individual 2: Individual 3: Individual 4:</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>d. Training records maintained for three years per 12 VAC 5-481-100.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Facilities, Materials and Equipment	
<p>a. List the source(s)/device(s):</p>	

Rec. Date	MFG	Model #	Isotope	Source #	S/N	Activity (Ci)	Activity Date	Disp/Tra Date

Notes: Ask for most recent inventory.

<p>b. Records of receipt, transfer and disposal of licensee's radioactive material maintained for 3 years as per 12 VAC 5-481-100 and 12 VAC 5-481-570.</p> <p>c. Use and storage area(s) meet the following criteria:</p> <p>1. Same as described in license. [L/C]</p> <p>1. Adequate controls in place to prevent unauthorized access to radioactive materials per 12 VAC 5-481-840.</p> <p>2. Device is used in accordance with their SSD certification.</p> <p>d. Licensee possesses or has access to survey instruments. [L/C].</p> <p>e. Survey meter is properly calibrated per 12 VAC 5-481-750.</p> <p>f. Records are maintained for 5 years per 12 VAC 5-481-1010.</p> <p>g. Physical inventories are conducted at 6-month intervals. [L/C]</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Leak Test

<p>a. Leak tests performed at 6 months intervals unless otherwise authorized on the Sealed Source Device Register. [L/C]</p> <p>b. Leak tests are analyzed by a licensee authorized by VDH, the NRC or an Agreement State per 12 VAC 5-481-740 C. [L/C].</p> <p>1. Company Name and license number:</p> <p>2. Test kit model number: Kit Mfg:</p> <p>3. Did inspector observe a user taking a sample?</p> <p>c. Leak tests are analyzed by the licensee. If yes, is licensee following the approved procedures?</p> <p>d. Leak tests results reported in Becquerels or Microcuries per 12 VAC 5-481-740 D, 12 VAC 5-481-1010.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
---	--

Independent Survey Measurements by the VDH Inspector

a. Independent confirmatory surveys performed.

If yes, complete the following information:

1. Survey instrument used:

- (a) Mfg./Make:
- (b) Model #:
- (c) Serial #:
- (d) Last calibration date:

2. Licensee survey instrument(s) if required [L/C]

- (a) Mfg./Make:
- (b) Model #:
- (c) Serial #:
- (d) Last calibration date:

3. Describe inspector instrument readings as compared to licensee instrument readings.

4. Highest radiation levels for following areas:

- (a) unrestricted area _____ (mR/hr)
- (b) 30 cm (1 ft) from device _____ (mR/hr)
- (c) external surface of device _____ (mR/hr)
- (d) 1 meter from device. _____ (mR/hr)

Yes No

Posting

a. Posting required per 12 VAC 5-481-860.

1. "Caution- Radioactive Material" signs posted per **12 VAC 5-481-860**.
Note: "Caution – Radioactive Material" sign need not be posted if levels are less than 0.05 Sv (5 mR/hr) at 30 cm from the container surface.
2. "Caution Radiation Area" sign posted per **12 VAC 5-481-860**.
Note: "Caution – Radiation Area" sign must be posted if levels are greater than 0.05 Sv (5 mR/hr) at 30 cm from the container surface.

Yes No N/A

Yes No N/A

b. The following documents are posted in a conspicuous location, or a summary that states where they are located per 12 VAC 5-481-2260 A:

1. Parts IV and X of 12 VAC 5-481.
2. The license, license conditions or incorporated documents.
3. Operating procedures

Yes No

Yes No

Yes No

Yes No

c. The following documents are posted in a conspicuous location per 12 VAC 5-481-2260 C

1. Emergency procedures.
2. "Notice to Employees" form.

Yes No

Yes No

Transportation of Radioactive Materials	
<p>a. Licensee ships their own materials. If yes, licensee adheres to provisions of 12 VAC 5-481-2980.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>b. Licensee uses the manufacturer/distributor, or a service licensee (who is authorized by VDH, the NRC, or another Agreement State) to ship their radioactive material.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>c. Shipment paperwork is maintained for 3 years per 12 VAC 5-481-3100.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Decommissioning	
<p>a. Decommissioning records for storage locations and records of other occurrences are kept in an identified location per 12 VAC 5-481-450 C 8. (i.e. blueprints, as-built drawings, appropriate records)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Notifications and Reports	
<p>a. Has any occupational overexposure or excessive levels of radiation occurred? Were they reported to the agency per 12 VAC 5-481-1090, 12 VAC 5-481-1100, or 12 VAC 5-481-1110?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>b. Has any reports of leaking source(s) been made to the agency per 12 VAC 5-481-1150?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>c. Has any theft or loss of licensed material, or radiological incident occurred and was the agency notified per 12 VAC 5-481-1090? If yes, describe the root cause and corrective actions taken for each incident.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
License Conditions / Tie-downs	
<p>a. License conditions reviewed.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. Licensee activities conducted in accordance with license conditions/tie-downs.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Information Notices	
<p>a. Licensee is receiving information notices</p> <p>1. Licensee has taken appropriate action in response to the notices. Note: Inspector will provide copies if the licensee has not received them.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No

Exit Meeting at Conclusion of Inspection	
a. Identify and list the individuals in attendance.	Date Conducted:
b. List those issues discussed at the exit meeting.	
Summary of Items of Non-Compliance and Recommendations	



VIRGINIA DEPARTMENT OF HEALTH
Radioactive Materials Program
Inspection Report



SELF-SHIELDED IRRADIATOR CHECKLIST

Licensee and Inspector Information

License No.:	Date of Inspection:	Priority:
Type of Inspection:	Announced <input type="checkbox"/> Unannounced <input type="checkbox"/> Initial <input type="checkbox"/> Routine <input type="checkbox"/> Special <input type="checkbox"/>	Date of Last Inspection:

Licensee (name and address):

Inspection

Site Address:

Contact Person:

Contact Tel No.:

Summary of Findings and Actions

- No Violations Cited
 Violation(s) Issued
 Repeat Violations

Next Inspection Date: Normal Reduced Extended

**Justification for Change
in Inspection Frequency:**

Lead Inspector:

Sign Name _____ Date _____

Print Name _____

Accompanying Inspector:

Sign Name _____ Date _____

Print Name _____

Reviewed By:

Sign Name _____ Date _____

Print Name _____

Notes:

NOTES (Describe how performance based inspection was completed):**Amendments and Program Changes (Review from last License renewal)**

a. Amendment #:	b. Date:	c. Subject/Items.
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Inspection History

- | | |
|---|---|
| <p>a. Items of Non-Compliance cited at last inspection.
1. Previous items of non-compliance properly corrected.
If no, list those items of non-compliance with an explanation.</p> <p>b. List previous recommendations:</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
|---|---|

Organization

- | | |
|--|--|
| <p>a. List and identify all individuals in attendance at entrance meeting.
Individual 1:
Individual 2:
Individual 3:
Individual 4:
Additional:</p> <p>b. Organizational structure meets requirements identified on license. [L/C]</p> <p>c. Mailing address and location of use identified on license? [L/C]</p> <p>d. Briefly describe the licensed material program.
(Program structure, management, facilities, materials, etc...)</p> <p>e. Radiation Safety Officer (RSO) performs his/her duties as prescribed by management. [L/C]</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No

<input type="checkbox"/> Yes <input type="checkbox"/> No

<input type="checkbox"/> Yes <input type="checkbox"/> No |
|--|--|

Management Oversight	
<p>a. Management supports ALARA per 12 VAC 5-481-630.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. Management supports RSO efforts.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>c. Radiation protection annual audits performed per 12 VAC 5-481-630.</p> <p>1. Audits conducted by:</p> <p>2. Areas reviewed:</p> <p>3. Audit records maintained per 12 VAC 5-481-990.</p> <p>4. Self identified problems noted.</p> <p style="padding-left: 20px;">(a) Corrective actions taken.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>d. Performance Evaluation Factors (P.E.F.) reviewed include the following:</p> <p>1. Senior management involved with radiation safety program and RSO oversight.</p> <p>2. RSO too busy with other assignments.</p> <p>3. Sufficient staffing for licensee program.</p> <p>4. Adequate audits being implemented.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
Training Program	
<p>a. AUs have received training on irradiator use in accordance with their submitted training program. [L/C]</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. Annual refresher training given to personnel likely to be exposed to >100 mrem/yr per 12 VAC 5-481-2270.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>c. Do the AU's demonstrate adequate knowledge and understanding of the operating and emergency procedures? (Example questions: Source not returning, interlock failure, fire, etc...)</p> <p>Identify those individuals interviewed: Individual 1: Individual 2: Individual 3: Individual 4:</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Facilities, Materials and Equipment

a. List the source(s)/device(s):

Rec. Date	MFG	Model #	Isotope	Source #	S/N	Activity (Ci)	Activity Date	Disp/Tra Date

Notes: Ask for most recent inventory.

- b. Records of receipt, transfer and disposal of licensee's radioactive material maintained for 3 years as per **12 VAC 5-481-100** and **12 VAC 5-481-570**. Yes No
- c. Use and storage area(s) meet the following criteria:
 - 1. Same as described in license. **[L/C]** Yes No
 - 1. Adequate controls in place to prevent unauthorized access to radioactive materials per **12 VAC 5-481-840**. Yes No
 - 2. Device is used in accordance with their SSD certification. Yes No
- d. Licensee possesses or has access to survey instruments. **[L/C]**. Yes No
- e. Survey meter is properly calibrated per **12 VAC 5-481-750**. Yes No NA
- f. Records are maintained for 5 years per **12 VAC 5-481-1010**. Yes No
- g. Physical inventories are conducted at 6-month intervals. **[L/C]** Yes No

Leak Test

- a. Leak tests performed at 6 months intervals unless otherwise authorized on the Sealed Source Device Register. **[L/C]** Yes No
- b. Leak tests are analyzed by a licensee authorized by VDH, the NRC or an Agreement State per **12 VAC 5-481-740 C. [L/C]**.
 - 1. Company Name and license number:
 - 2. Test kit model number: Kit Mfg:
 - 3. Did inspector observe a user taking a sample? Yes No
- c. Leak tests are analyzed by the licensee. Yes No
 If yes, is licensee following the approved procedures? Yes No N/A
- d. Leak tests results reported in Becquerels or Microcuries per **12 VAC 5-481-740 D, 12 VAC 5-481-1010**. Yes No

Independent Survey Measurements by the VDH Inspector

a. Independent confirmatory surveys performed.

If yes, complete the following information:

1. Survey instrument used:

- (a) Mfg./Make:
- (b) Model #:
- (c) Serial #:
- (d) Last calibration date:

2. Licensee survey instrument(s) if required [L/C]

- (a) Mfg./Make:
- (b) Model #:
- (c) Serial #:
- (d) Last calibration date:

3. Describe inspector instrument readings as compared to licensee instrument readings.

4. Highest radiation levels for following areas:

- (a) unrestricted area _____ (mR/hr)
- (b) 30 cm(1 ft) from device _____ (mR/hr)
- (c) external surface of device _____ (mR/hr)
- (d) 1 meter from device. _____ (mR/hr)

Yes No

Posting

a. Posting required per 12 VAC 5-481-860.

1. "Caution- Radioactive Material" signs posted per **12 VAC 5-481-860**.
Note: "Caution – Radioactive Material" sign need not be posted if levels are less than 0.05 Sv (5 mR/hr) at 30 cm from the container surface.
2. "Caution Radiation Area" sign posted per **12 VAC 5-481-860**.
Note: "Caution – Radiation Area" sign must be posted if levels are greater than 0.05 Sv (5 mR/hr) at 30 cm from the container surface.

Yes No N/A

Yes No N/A

b. The following documents are posted in a conspicuous location, or a summary that states where they are located per 12 VAC 5-481-2260 A:

1. Parts IV and X of 12 VAC 5-481.
2. The license, license conditions or incorporated documents.
3. Operating procedures

Yes No

Yes No

Yes No

Yes No

c. The following documents are posted in a conspicuous location per 12 VAC 5-481-2260 C

1. Emergency procedures.
2. "Notice to Employees" form.

Yes No

Yes No

Transportation of Radioactive Materials	
<p>a. Licensee ships their own materials. If yes, licensee adheres to provisions of 12 VAC 5-481-2980.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>b. Licensee uses the manufacturer/distributor, or a service licensee (who is authorized by VDH, the NRC, or another Agreement State) to ship their radioactive material.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>c. Shipment paperwork is maintained for 3 years per 12 VAC 5-481-3100.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Decommissioning	
<p>a. Decommissioning records for storage locations and records of other occurrences are kept in an identified location per 12 VAC 5-481-450 C 8. (i.e. blueprints, as-built drawings, appropriate records)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Notifications and Reports	
<p>a. Has any occupational overexposure or excessive levels of radiation occurred? Were they reported to the agency per 12 VAC 5-481-1090, 12 VAC 5-481-1100, or 12 VAC 5-481-1110?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>b. Has any reports of leaking source(s) been made to the agency per 12 VAC 5-481-1150?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>c. Has any theft or loss of licensed material, or radiological incident occurred and was the agency notified per 12 VAC 5-481-1090? If yes, describe the root cause and corrective actions taken for each incident.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
License Conditions / Tie-downs	
<p>a. License conditions reviewed.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. Licensee activities conducted in accordance with license conditions/tie-downs.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Information Notices	
<p>a. Licensee is receiving information notices 1. Licensee has taken appropriate action in response to the notices. Note: Inspector will provide copies if the licensee has not received them.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No

3. Materials and Equipment

a. List the sources:

No	Rec Date	MFG	Isotope	Model #	S/N	Activity (Ci)	Activity Date	Disp/Transfer Date
1								
2								
3								
4								

Note: Use additional supplementary inventory sheet if needed.
Request a copy of most recent inventory from licensee.

b. List the energy compensation sources and/or tritium neutron generator target sources:

No	MFG	Model #	S/N	Notes
1				
2				
3				
4				

Note: Use additional supplementary inventory sheet if needed.
Request a copy of most recent inventory from licensee.

4. Performance Requirements

a. Each source, source holder, or logging tool has a visible label attached containing the following per **12 VAC 5-481-3250**:

- (1) Conventional radiation symbol, without color requirement.
- (2) "Caution (or Danger) Radioactive Material".
- (3) On the smallest component transported as a separate piece of equipment.

Yes No
 Yes No
 Yes No

b. The sources to be used in downhole operations meet the following requirements of **12 VAC 5-481-3240**:

- (1) Be of doubly encapsulated construction.
- (2) Contain radioactive material whose chemical and physical forms are as insoluble and nondispersible as practical.
- (3) Certified by an acceptable method listed in **12 VAC 5-481-3240 A 3**

Yes No
 Yes No
 Yes No
 Yes No

c. Use of sealed source or energy compensation source in a well without surface casing procedure approved? (**12 VAC 5-481-3240**)

Yes No N/A

d. Has the licensee identified any equipment problems (i.e. source handling tools) per **12 VAC 5-481-3260**?

If yes, has equipment been removed from service until repaired?

Yes No N/A
 Yes No

e. All personnel handling radioactive tracer material per **12 VAC 5-481-3320** use protective gloves and appropriate protective clothing and equipment.

Yes No N/A

f. No particle accelerators are permitted for above-ground testing unless the area or facility is controlled or shielded to meet **12 VAC 5-481-630** and **12 VAC 5-481-640** requirements. (**12 VAC 5-481-3330**)

Yes No N/A

5. Storage Requirements	
<p>a. The source or transport container has a lock or container has a lock per 12 VAC 5-481-3180.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. The transport container is physically secured to the transporting vehicle per 12 VAC 5-481-3190.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>c. All waste generated at jobsite handled properly and tracked to ensure accountability (i.e, packaged, labeled, and placed in storage).</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Radiation Surveys	
<p>a. Surveys are conducted and recorded for each area where radioactive materials are used and stored per 12 VAC 5-481-3340.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>b. Surveys are conducted on before and after each subsurface tracer study to confirm absence of contamination. (12 VAC 5-481-3340)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Independent Survey Measurements by the VDH Inspector	
<p>a. Independent confirmatory surveys performed.</p> <p>(1) Survey instrument used:</p> <p style="margin-left: 20px;">(a) Mfg./Make:</p> <p style="margin-left: 20px;">(b) Model #:</p> <p style="margin-left: 20px;">(c) Serial #:</p> <p style="margin-left: 20px;">(d) Last calibration date:</p> <p>(2) Licensee survey instrument(s):</p> <p style="margin-left: 20px;">(a) Mfg./Make:</p> <p style="margin-left: 20px;">(b) Model #:</p> <p style="margin-left: 20px;">(c) Serial #:</p> <p style="margin-left: 20px;">(d) Last calibration date:</p> <p>(3) Describe inspector instrument readings as compared to licensee instrument readings.</p> <p>(4) Highest radiation levels for following areas:</p> <p style="margin-left: 20px;">(a) unrestricted area when exposed _____ (mR/hr). Note: including the floor/ceiling if applicable.</p> <p style="margin-left: 20px;">(b) external surface of device when shielded _____ (mR/hr).</p> <p style="margin-left: 20px;">(d) 1 meter from device when shielded _____ (mR/hr).</p> <p style="margin-left: 20px;">(e) other locations surveyed:</p>	
<p>b. Radiation levels in all unrestricted areas less than 2 mR in any one hour, and resulting non-occupational personnel exposure less than 100 mR/yr per 12 VAC 5-481-720 and 12 VAC 5-481-3170.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

8. Posting

<p>a. Are the following signs posted in each applicable area:</p> <p>(1) "Caution Radiation Area" (5 mrem in 1 hour @ 30 cm) [12 VAC 5-481-860] Note: Can be posted at the restricted area line (2 mrem/hr)</p> <p>(2) "Caution/Danger High Radiation Area" (100 mrem in 1 hour @ 30 cm) [12 VAC 5-481-860]</p> <p>(3) "Caution Radioactive Materials" posted when required. [12 VAC 5-481-860] Note: "Caution Radioactive Materials" for storage/use areas when quantity of material exceeds 12 VAC 5-481-3700.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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9. Documents and Records

<p>a. The following is available at the jobsite per 12 VAC 5-481-3350:</p> <p>(1) License.</p> <p>(2) Copy of 12 VAC 5-481 Parts IV, X and XIV.</p> <p>(3) Utilization log.</p> <p>(4) Daily equipment check log.</p> <p>(5) Physical Inventories</p> <p>(6) Operating and Emergency procedures.</p> <p>(7) Latest survey instrument calibration record.</p> <p>(8) Survey and training records</p> <p>(9) Shipping paperwork, which includes:</p> <p>(a) Material description:</p> <ol style="list-style-type: none"> 1. Description entered first or in a separate color. 2. "Radioactive Material" included. 3. Name of radionuclide. 4. Description of physical form. 5. Activity of radionuclide. 6. Category of label applied to package. 7. Transport index assigned to package. <p>(b) Name of shipper.</p> <p>(c) Emergency response telephone number.</p> <p>(10) A copy of applicable state or NRC license when operating under reciprocity.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
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10. Documents and Records Required at Temporary Jobsites

<p>a. The following is available at any temporary jobsite per 12 VAC 5-481-3360:</p> <p>(1) Operating and emergency procedures.</p> <p>(2) Surveys for period of operation.</p> <p>(3) Current calibration for radiation instruments.</p> <p>(4) A copy of applicable license or registration when operating under reciprocity.</p> <p>(5) Shipping papers as noted above.</p>	
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11. Transportation of Radioactive Materials	12 VAC 5-481-2980, 12 VAC 5-481-3190
a. Package/container is blocked and braced during transfer per 49 CFR 177.842.	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Proper shipping name and identification number is marked on package per 49 CFR 172.301(a).	<input type="checkbox"/> Yes <input type="checkbox"/> No
c. Package is labeled properly per 49 CFR 172.403.	<input type="checkbox"/> Yes <input type="checkbox"/> No
d. Package is marked properly per 49 CFR 172.310(b) with shipping name,	<input type="checkbox"/> Yes <input type="checkbox"/> No
e. For packages greater than 110 pounds the gross weight is marked on outside of package per 49 CFR 172.310(a).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
f. For shipments utilizing overpacks, the overpack is marked with the following per 49 CFR 173.25: (1) Proper shipping name and identification number (2) A statement indicating that the inside (inner) package complies with specification markings (i.e. shipping name and number, "Type B", and gross weight as necessary)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
g. For shipments utilizing overpacks, the overpack must bear the applicable label per 49 CFR 173.448.	<input type="checkbox"/> Yes <input type="checkbox"/> No
h. For packages shipped Yellow III, the vehicle is placarded per 49 CFR 172.500.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
i. The shipping paperwork is readily accessible during transportation. [49 CFR 177.81(e)]	<input type="checkbox"/> Yes <input type="checkbox"/> No



**VIRGINIA DEPARTMENT OF HEALTH
Radioactive Materials Program
Inspection Report**



**WELL LOGGING, TRACER, AND FIELD FLOOD STUDY
OFFICE INSPECTION**

Licensee and Inspector Information

License No.:	Date of Inspection:	Priority:
Type of Inspection:	Announced <input type="checkbox"/> Unannounced <input type="checkbox"/> Initial <input type="checkbox"/> Routine <input type="checkbox"/> Special <input type="checkbox"/>	Date of Last Inspection:

Licensee (name and address):

Inspection Site Address:

Contact Person: _____ **Contact Tel No.:** _____

Summary of Findings and Actions

No Violations Cited

Violation(s) Issued

Repeat Violations

Next Inspection Date: Normal Reduced Extended

Justification for Change in Inspection Frequency:

Lead Inspector:

Sign Name _____ Date _____

Print Name _____

Accompanying Inspector:

Sign Name _____ Date _____

Print Name _____

Reviewed By:

Sign Name _____ Date _____

Print Name _____

Notes:

Inspection Objectives

- 1. To determine if licensed activities are being conducted in a manner that will protect the health and safety of the workers and general public.**
- 2. To determine if the licensed programs are being conducted in accordance with 12 VAC 5-481 'Virginia Radiation Protection Regulations'.**

Inspection Preparation

- 1. Review licensee's documents**
- 2. Review all license condition(s) and amendment(s) issued since the last inspection.**
- 3. Check to see if the licensee has informed the agency of any major program changes.**
- 4. Review Information Notices for recent information pertaining to Well Logging, Tracer, and Field Flood Study.**
- 5. Review Nuclear Material Events Database (NMED) files for regional and local notices of incidents and/or events.**
- 6. Check previous inspection history for any cited Notice of Violation(s) (NOV), Responses, Recommendations and Safety Items, etc.**
- 7. Select survey meter suitable for obtaining radiation level measurements (unless leaking source/contamination is suspected).**

NOTES (Describe how performance based inspection was completed):

Empty space for notes.

1. Checklists Used

Office Field

**2. Amendments and Program Changes
(Review from last License renewal)**

12 VAC 5-481-510, 12 VAC 5-481-520,
12 VAC 5-481-530

a. Amendment #	b. Date:	c. Subject/Items.
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3. Inspection History

<p>a. Items of violations cited at last inspection. (1) Previous violation(s) properly corrected. If no, list those violations with an explanation.</p> <p>b. List previous recommendations:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
--	---

4. Organization

12 VAC 5-481-450, 12 VAC 5-481-630,
12 VAC 5-481-3150, 12 VAC 5-481-3160

<p>a. List and identify all individuals in attendance at entrance meeting. Individual 1: Individual 2: Individual 3: Individual 4: Additional:</p> <p>b. Organizational structure meets requirements identified on license. [L/C]</p> <p>c. Mailing address and authorized locations of use are as identified on license? [L/C]</p> <p>d. Briefly describe the licensed material program. (# logging supervisors/assistants, offices, program structure, job sites, etc.)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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e. Radiation Safety Officer (RSO) performs the following duties (12 VAC 5-481-450):

- (1) Establishes and oversees operating, emergency and ALARA procedures.
- (2) Oversees and approves the training program.
- (3) Ensures radiation surveys and leak tests are performed.
- (4) Ensures personnel monitoring devices are calibrated and used properly, records are properly maintained, and timely notifications are made.
- (5) Ensures that operations are conducted safely.

Yes No

Yes No

Yes No

Yes No

Yes No

f. To whom in the organization does the RSO report?

g. Written agreement between well owner and operator establishes all the requirements of 12 VAC 5-481-3160.

Yes No

h. Radioactive materials in licensee possession are as authorized in license?

Note: Request a copy of the most recent inventory.

Yes No

5. Management Oversight

a. Management supports ALARA per 12 VAC 5-481-630.

Yes No

b. Management supports RSO efforts.

Yes No

c. Radiation protection annual audits performed per 12 VAC 5-481-630:

Yes No

(1) Audits conducted by:

(2) Areas reviewed:

(3) Audit records maintained per 12 VAC 5-481-990.

Yes No

(4) Self identified problems noted.

Yes No

(a) Corrective actions taken.

Yes No N/A

d. Performance Evaluation Factors (P.E.F.) reviewed include the following:

(1) Senior management involved with radiation safety program and RSO oversight.

Yes No

(2) RSO too busy with other assignments.

Yes No

(3) Sufficient staffing for licensee program.

Yes No

(4) Adequate audits being implemented.

Yes No

6. Training Program

- | | |
|---|--|
| <p>a. All authorized users approved in writing by the RSO. [L/C]
List authorized users:</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>b. Logging Supervisors meet the following requirements of 12 VAC 5-481-3270 A:</p> <p>(1) Received copies and instruction of Parts I, IV, X, and XIV, conditions of license, and operating and emergency procedures;</p> <p>(2) Ability to use sources of radiation, handling tools, and survey instruments demonstrated by a field evaluation;</p> <p>(3) Completed a written or oral examination.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>c. Logging Assistants meet the following requirements of 12 VAC 5-481-3270 B:</p> <p>(1) Received instruction in Parts I, IV, X and XIV;</p> <p>(2) Received copies of and instruction in licensee's operating and emergency procedures;</p> <p>(3) Completed a written or oral examination;</p> <p>(4) Demonstrated ability to use, under supervision, sources of radiation, handling tools, and survey instruments</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>d. Annual refresher safety training given per 12 VAC 5-481-3270 C.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>e. Records of training, exams, and refresher training for Logging Supervisors and Logging Assistants maintained for 3 years following creation per 12 VAC 5-481-3270 D.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>f. Annual training provided to all individuals/workers who are likely to receive an occupational radiation dose >100mR/yr and records maintained for 5 years per 12 VAC 5-481-2270.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>g. Was HAZMAT training given and records maintained per 49 CFR 172.704?
Note: Required only if transporting a Yellow-III label. Training is required for personnel who prepare, load, unload or transport.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |

7. Notifications and Reports

- | | |
|--|--|
| <p>a. Occupational overexposures reported to the agency since last inspection per 12 VAC 5-481-1100 and 12 VAC 5-481-1110</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>b. Reports of leaking source(s) reported to the agency since last inspection per 12 VAC 5-481-1150 and 12 VAC 5-481-3210 D.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>c. Since last inspection, any theft, loss of licensed material or radiological incident occurred and agency notified per 12 VAC 5-481-1090.
(1) If yes, describe the root cause and corrective actions taken for each incident.</p> | <input type="checkbox"/> Yes <input type="checkbox"/> No |

10. Leak Test

<p>a. Leak tests performed at 6 months intervals per 12 VAC 5-481-740 A 1 and 12 VAC 5-481-3210 C. (1) Test kit model number: Kit Mfg: (2) Did inspector observe a user taking a sample?</p> <p>b. Licensee performs leak test analysis. [L/C]</p> <p>c. Leak tests are analyzed by a facility authorized by VDH, the NRC or an Agreement State.</p> <p>d. Leak tests results reported in Becquerels or Microcuries per 12 VAC 5-481-3210 A.</p> <p>e. Contamination surveys for Energy Compensation Sources (ECS), if not exempted by 12 VAC 5-481-3210 E is performed at intervals not to exceed 6 months per 12 VAC 5-481-3210 C.</p> <p>f. Records are maintained for 3 years per 12 VAC 5-481-1010 and 12 VAC 5-481-3210 A.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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11. Receipt and Disposal of Radioactive Material

<p>a. Describe how packages are received. Who receives them?</p> <p>b. Licensee package receipt procedures in place per 12 VAC 5-481-900.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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12. Facilities, Materials and Equipment

a. List the sources:

No	Rec Date	MFG	Isotope	Model #	S/N	Activity (Ci)	Activity Date	Disp/Transfer Date
1								
2								
3								
4								

Note: Use additional supplementary inventory sheet if needed.
 Request a copy of most recent inventory from licensee.

b. List the energy compensation sources and/or tritium neutron generator target sources:

No	MFG	Model #	S/N	Notes
1				
2				
3				
4				

Note: Use additional supplementary inventory sheet if needed.
Request a copy of most recent inventory from licensee.

<p>c. Licensee maintains records of transferred/disposed sources/devices for 3 years following the transfer/disposal per 12 VAC 5-481-100, 12 VAC 5-481-570 A, and 12 VAC 5-481-3240 B.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>d. Licensee maintains utilization log(s) for each device and records are retained for 3 years per 12 VAC 5-481-3230.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>e. Use and storage area(s) meet the following criteria:</p>	
<p>(1) Same as described in license. [L/C]</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>(2) Adequate controls in place to prevent unauthorized access to radioactive materials in storage per 12 VAC 5-481-3180.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>(3) Radioactive material in an unrestricted area and not in storage is secured against unauthorized removal from an unrestricted area per 12 VAC 5-481-840.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>(4) Physical inventories performed per 12 VAC 5-481-3220.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>(5) Records of quarterly inventories maintained for 3 years per 12 VAC 5-481-3220.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>(6) Devices used in accordance with their SSD certification (i.e. source authorized for device, etc).</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>(7) Use of sealed sources without surface casing or injection into a fresh water aquifer permitted? (12 VAC 5-481-3240 and 12 VAC 5-481-3320)</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
<p>f. Survey instrument(s) meet the following criteria:</p>	
<p>(1) Sufficient number to perform surveys at each location per 12 VAC 5-481-3200.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>(2) Capable of measuring a range from 0.1 mrem per hour through 50 mrem per hour, per 12 VAC 5-481-3200 A.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>(3) Calibrated at intervals not to exceed 6 months per 12 VAC 5-481-3200 B.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>(4) Calibration records retained for 3 years per 12 VAC 5-481-3200 C.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

- g. Licensee inspection and maintenance program meet the following criteria:**
 - (1) Visual and operability checks performed on source holders, logging tools, source handling tools prior to day's or shift's work per **12 VAC 5-481-3260 A.**
 - (2) Inspection(s) and routine maintenance of source holders, logging and injection tools, source handling tools, transport and storage containers and survey instruments performed semi-annually per **12 VAC 5-481-3260 B.**
 - (3) Records maintained for 3 years per **12 VAC 5-481-3260 A & B.**
- h. Decommissioning records for storage locations and records of other occurrences are kept in an identified location per 12 VAC 5-481-450 C 8?**
(i.e. blueprints, appropriate records, as-built drawings)
- i. Records of radiation and contamination control surveys per 12 VAC 5-481-3340 maintained?**

Yes No

Yes No

Yes No

Yes No

Yes No

13. Independent Survey Measurements by the VDH Inspector

- a. Independent confirmatory surveys performed.**
 - (1) Survey instrument used:
 - (a) Mfg./Make:
 - (b) Model #:
 - (c) Serial #:
 - (d) Last calibration date:
 - (2) Licensee survey instrument(s)
 - (a) Mfg./Make:
 - (b) Model #:
 - (c) Serial #:
 - (d) Last calibration date:
 - (3) Describe inspector instrument readings as compared to licensee instrument readings.
 - (4) Highest radiation levels for following areas:
 - (a) unrestricted area _____ (mR/hr)
 - (b) 30 cm(1 ft) from device _____ (mR/hr)
 - (c) external surface of device _____ (mR/hr)
 - (d) 1 meter from device. _____ (mR/hr)
- b. Radiation levels in all unrestricted areas less than 2 mR in any one hour, and resulting non-occupational personnel exposure less than 100 mR/yr per 12 VAC 5-481-720 and 12 VAC 5-481-3170.**
- c. The exposure rate during use, storage, and transportation maintained at acceptable levels of 12 VAC 5-481-3170 and 12 VAC 5-481-3340.**

Yes No

Yes No

14. Posting

<p>a. Posting required per 12 VAC 5-481-860 including:</p> <p>(1) "Caution- Radioactive Material" signs posted per 12 VAC 5-481-860.</p> <p>(2) "Caution Radiation Area" sign posted per 12 VAC 5-481-860.</p> <p>Note: "Caution – Radiation Area" sign must be posted if levels are greater than 5 mR/hr at 30 cm from the container surface.</p> <p>b. The following documents are posted in a conspicuous location, or a summary that states where they are located per 12 VAC 5-481-2260:</p> <p>(1) A copy of Parts I, IV,X, and XIV of 12 VAC 5-481, "Virginia Radiation Protection Regulations"</p> <p>(2) The license, license conditions or incorporated documents.</p> <p>(3) Operating and emergency procedures.</p> <p>(4) VDH form, 'Notice to Employees'</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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15. Labeling

<p>a. Label as required are properly attached, legible and contain the following (if applicable) per 12 VAC 5-481-3250:</p> <p>(1) Radiation symbol.</p> <p>(2) "Caution (or Danger) Radioactive Material"</p> <p>(3) "Notify Civil Authorities (or Name of Company)".</p> <p>(4) "Caution Radioactive Depleted Uranium".</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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16. Instructions to Workers:

<p>a. Are individual workers likely to receive an occupational radiation dose (>1 mSv (100 mR)/year) provided annual training? (12 VAC 5-481-2270)</p> <p>(1) Is training commensurate with potential radiological health protection problems present in the workplace? (12 VAC 5-481-2270)</p> <p>b. Are non-occupationally exposed workers (<1 mSv (100 mR)/year) given training (i.e., housekeeping, security, etc)?</p> <p>(1) Are training records maintained and available?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p>
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17. Transportation of Radioactive Materials **12 VAC 5-481-2980**

<p>a. Package/container meets the design requirements of 49 CFR 173.410.</p> <p>b. DOT 7-A performance test records on file per 49 CFR 173.415(a).</p> <p>c. Special Form Source Certificates, Certificate of Compliance and performance test records are on file per 49 CFR 173.476(a).</p> <p>d. Surveys taken per 12 VAC 5-481-3070 to verify compliance with radiation and contamination levels prior to offering for transportation?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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18. License Conditions / Tie-downs	
a. Were all license conditions reviewed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Were licensee activities conducted in accordance with license conditions / Tie-Downs?	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. Bulletins and Information Notices	
a. Licensee is receiving the agency information notices. (1) Licensee has taken appropriate action in response to the notices. Note: Inspector will provide copies if the licensee has not received them.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
20. Exit Meeting at Conclusion of Inspection	
a. List and identify the individuals in attendance.	Date Conducted:
B. List those issues discussed at the exit meeting.	
21. Violations and Recommendations	

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DIVISION OF PUBLIC HEALTH

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Governor

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Secretary

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September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by ss. 254.31 – 254.45, Stats. and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your WI Radioactive Material License number License Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with Wisconsin Administrative Code, Chapter HFS 157 'Radiation Protection'.

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

We are concerned that ...[describe IONC or issue] may indicate.... lack of management attention, etc.

Areas of your program that could be improved to meet nationally accepted standards of practice are addressed in the recommendations. Recommendations are included for areas of health and safety that should be reviewed (see enclosure).

Based on the results of this inspection, certain of your activities were not conducted in full compliance as set forth in the enclosed notice of noncompliance.

Submit a written statement or explanation in reply including:

- (1) Corrective actions that have been taken by you and the results achieved.
- (2) Corrective actions which will be taken to avoid further items of noncompliance.

(3) The date when full compliance will be achieved. This report shall be received by this office before Date.

This is to advise you that you are required to post the enclosed notice of non compliance of radiological working conditions and your response to DHFS [HFS 157.88(1)(c)].

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail atInspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

BPH/

Encl.



DIVISION OF PUBLIC HEALTH

Jim Doyle
Governor

Helene Nelson
Secretary

1 WEST WILSON STREET
P O BOX 2659
MADISON WI 53701-2659

Phone 608-267-4797
FAX: 608-267-3695
www.dhfs.state.wi.us

State of Wisconsin

Department of Health and Family Services

NOTICE OF NON COMPLIANCE

Licensee Name

Radioactive Material License Number Number

Based on the results of the Wisconsin Department of Health & Family Services, Radiation Protection Section inspection of Licensee Name, license number RML Number conducted on Date, certain of your activities are not in compliance with Wisconsin Administrative Code, Chapter HFS 157 'Radiation Protection' as indicated below:

1.

RECOMMENDATIONS

Licensee
Radioactive Material License Number Number

September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your VA Radioactive Material License number License Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

We are concerned that[describe IONC or issue] may indicate..... lack of management attention, etc.

Based on the results of this inspection, certain of your activities were not conducted in full compliance as set forth in the enclosed notice of noncompliance.

Submit a written statement or explanation in reply including:

- (1) Corrective actions that have been taken by you and the results achieved.
- (2) Corrective actions which will be taken to avoid further items of noncompliance.
- (3) The date when full compliance will be achieved. This report shall be received by this office before Date.

This is to advise you that you are required to post the enclosed notice of non compliance of radiological working conditions and your response to 12 VAC 5-481-2260.

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail atInspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

BPH/

Encl.

NOTICE OF NON COMPLIANCE

Licensee Name

Radioactive Material License Number Number

Based on the results of the inspection of Licensee Name, license number RML Number conducted on Date, certain of your activities are not in compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.' as indicated below:

1.

Date

Alleger Address
Street / P.O. Box
City, State Zip Code

Dear Alleger,

This letter responds to your allegation that was referred to us by the received by the Virginia Department of Health (VDH), Radioactive Materials Program on Date. We have completed our follow-up in response to the concerns you raised. We performed an inspection at Licensee / Facility on Date. The attachment to this letter lists your concerns and describes how VDH resolved the concerns you raised.

Thank you for informing us of your concerns. We feel our actions in this matter have been responsive to those concerns. We take our safety responsibilities to the public very seriously and will continue to do so within the bounds of our lawful authority. Unless VDH receives additional information that suggests our conclusions should be altered, we plan no further action on this matter. Should you have any additional questions, or I can be of further assistance in this matter, please contact me at 804-864-8168.

Sincerely,

Michael Welling
Director, Radioactive Materials Program
Enclosure: As stated

Allegation No. VA - Year - Allegation Number

Concern 1.

Describe the allegor's concern as provided in the acknowledgement letter or as modified by the allegor.

(Provide a brief/direct answer to each of the allegor's concerns, stating what was done and what was found. Make certain that we provide a clear statement as to whether the concern was substantiated, unsubstantiated, or partially substantiated.)

The concern was found to be substantiated/ partially substantiated / unsubstantiated.

Concern 2.

Describe the allegor's concern as provided in the acknowledgement letter or as modified by the allegor.

(Provide a brief/direct answer to each of the allegor's concerns, stating what was done and what was found. Make certain that we provide a clear statement as to whether the concern was substantiated, unsubstantiated, or partially substantiated.)

The concern was found to be substantiated/ partially substantiated / unsubstantiated.

Date

Name of Licensee/Registrant
Atten: Licensee/Registrant Contact
Addressee
Street Address
City, State Zip Code

Subject: Confirmatory Action Letter; Registration No.

Dear :

On **Date**, staff from the VDH Radioactive Materials Program conducted an inspection of your radioactive material use at **Address**. This inspection uncovered numerous violations of the requirements in 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

You will be provided a separate letter containing the inspection results, the specific violations as well as a number of recommendations.

The violations found during the inspection constitute a potential health and safety threat to the public and your material users that must be addressed before using the radioactive materials in your possession. During a **Date** meeting between yourself and VDH staff at your facility, it is our understanding that you have taken or will take all the following actions:

1. Place the radioactive materials in your possession in locked, secured storage at your facility.
2. Do not use the materials until all violations of 12 VAC 5-481, 'Virginia Radiation Protection Regulations', as identified in the inspection letter, are corrected and verified by VDH inspectors.

In response to this letter, we ask that you do the following:

- Notify me immediately if your understanding differs from that listed above.
- Indicate your acceptance of the two actions listed above by signing and dating this letter in the space indicated and returning it to VDH, Radioactive Materials Program.
- Notify me if for any reason you cannot complete the actions listed above and advise me in writing of the reasons why the actions cannot be completed.

Please be advised that issuance of this confirmatory action letter does not preclude VDH from issuing an order formalizing the above commitments or requiring other actions on the part of the registrant; nor does it preclude VDH from taking enforcement action for violations of 12 VAC 5-481, 'Virginia Radiation Protection Regulations' that may have prompted the issuance of this letter. In addition, failure to respond to this letter may result in enforcement action.

Please contact Michael Welling at (804) 864-8618 with any questions.

Sincerely,

Les Foldesi
Director, Division of Radiological Health

Registration No.:
Registrant:

Registrant Signature

Date

September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your VA Radioactive Material General License Registration number License Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

No items of noncompliance were observed during the course of this inspection.

Areas of your program that could be improved to meet nationally accepted standards of practice are addressed in the recommendations. Recommendations are included for areas of health and safety that should be reviewed (see enclosure).

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail at Inspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

BPH/
Encl

RECOMMENDATIONS

Licensee
Radioactive Material General License Registration Number Number

1.

September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your VA Radioactive Material General License Registration number Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

Areas of your program that could be improved to meet nationally accepted standards of practice are addressed in the recommendations. Recommendations are included for areas of health and safety that should be reviewed (see enclosure).

Based on the results of this inspection, certain of your activities were not conducted in full compliance as set forth in the enclosed notice of noncompliance.

Submit a written statement or explanation in reply including:

- (1) Corrective actions that have been taken by you and the results achieved.
- (2) Corrective actions which will be taken to avoid further items of noncompliance.
- (3) The date when full compliance will be achieved. This report shall be received by this office before Date.

This is to advise you that you are required to post the enclosed notice of non compliance of radiological working conditions and your response to 12 VAC 5-481-2260.

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail at Inspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

BPH/

Encl.

NOTICE OF NON COMPLIANCE

Licensee Name

Radioactive Material General License Registration Number Number

Based on the results of the VDH Radioactive Materials Program inspection of Licensee Name, RML Number conducted on Date, certain of your activities are not in compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations' as indicated below:

- 1.

RECOMMENDATIONS

Licensee
Radioactive Material General License Registration Number Number

Date

Name of Licensee

Attn: Licensee Contact

Addressee

Street Address

City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your WI Radioactive Material License number License Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

Areas of your program that could be improved to meet nationally accepted standards of practice are addressed in the recommendations. Recommendations are included for areas of health and safety that should be reviewed (see enclosure).

Based on the information developed during the inspection and the information that you provided during the predecisional enforcement conference, VDH has determined that violations of 12 VAC 5-481, 'Virginia Radiation Protection Regulations,' occurred. These violations are cited in the enclosed Notice of Non-Compliance. Specifically, the violations involved failures to: (1) [shortly describe violation; for example: "*(1) confine the use and storage of licensed material to a location authorized by Radioactive Material License*"]; (2) [shortly describe violation]; and (3) [shortly describe violation]. During the conference, your representative [insert a title or name] stated [insert the statement concerning violation; for example: "*he was not aware of the requirement to amend the license regarding a change of authorized location of the use and*"]

storage of licensed radioactive material (Violation 1)." [State a type of safety consequences and shortly identify a significance of this violation ; for example: *"There were no actual safety consequences associated with Violation 1. The significance of this violation stems from relocating the radioactive material with the potential to expose members of the public to radiation"*].

VDH may assess a forfeiture (i.e. fine) of \$ for each violation. Each day of continued violation constitutes a separate offense. VDH has decided [insert decision; for example: *"to waive the forfeiture due to the fact that this violation was not willful, there were no actual safety consequences and the licensee has verbally provided a strong plan of corrective actions"*].

Submit a written statement or explanation in reply including:

- (1) Corrective actions that have been taken by you and the results achieved.
- (2) Corrective actions which will be taken to avoid further items of noncompliance.
- (3) The date when full compliance will be achieved. This report shall be received by this office before Date.

This is to advise you that you are required to post the enclosed notice of non compliance of radiological working conditions and your response to 12 VAC 5-481-2260.

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail at Inspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

BPH/

Encl.

NOTICE OF NON COMPLIANCE

Licensee Name

Radioactive Material License Number Number

Based on the results of the VDH Radioactive Materials Program inspection of Licensee Name, license number Number conducted on Date, certain of your activities are not in compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations' as indicated below:

- 1.

RECOMMENDATIONS

Licensee
Radioactive Material License Number Number

September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your Radioactive Material License number License Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

No items of noncompliance were observed during the course of this inspection.

Areas of your program that could be improved to meet nationally accepted standards of practice are addressed in the recommendations. Recommendations are included for areas of health and safety that should be reviewed (see enclosure).

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail at Inspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

BPH/
Encl

RECOMMENDATIONS

Licensee
Radioactive Material License Number Number

1.

Today's Date

Address
Address
Address
Address

Dear Contact Individual;

Thank you for your letter dated Date of Licensee's Response Letter informing us of the steps you have taken to correct the noncompliance of License Number License Number, which we brought to your attention in our letter, dated Date of Non-compliance letter. We have no further questions at this time. These matters will be examined during a future inspection.

If you have any questions or concerns please feel free to contact me at Telephone Number or e-mail at Email Address.

Sincerely,

Reviewers Name
Position Title
Radioactive Materials Program

September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your WI Radioactive Material License number License Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

Areas of your program that could be improved to meet nationally accepted standards of practice are addressed in the recommendations. Recommendations are included for areas of health and safety that should be reviewed (see enclosure).

Based on the results of this inspection, certain of your activities were not conducted in full compliance as set forth in the enclosed notice of noncompliance.

Submit a written statement or explanation in reply including:

- (1) Corrective actions that have been taken by you and the results achieved.
- (2) Corrective actions which will be taken to avoid further items of noncompliance.
- (3) The date when full compliance will be achieved. This report shall be received by this office before Date.

This is to advise you that you are required to post the enclosed notice of non compliance of radiological working conditions and your response to 12 VAC 5-481-2260.

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail at Inspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

BPH/

Encl.

NOTICE OF NON COMPLIANCE

Licensee Name

Radioactive Material License Number Number

Based on the results of the inspection of Licensee Name, license number Number conducted on Date, certain of your activities are not in compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations' as indicated below:

- 1.

RECOMMENDATIONS

Licensee
Radioactive Material License Number Number

September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your Radioactive Material License number License Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

Based on the results of this inspection, certain of your activities were not conducted in full compliance as set forth in the enclosed notice of noncompliance.

Submit a written statement or explanation in reply including:

- (1) Corrective actions that have been taken by you and the results achieved.
- (2) Corrective actions which will be taken to avoid further items of noncompliance.
- (3) The date when full compliance will be achieved. This report shall be received by this office before Date.

This is to advise you that you are required to post the enclosed notice of non compliance of radiological working conditions and your response to 12 VAC 5-481-2260.

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail atInspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

BPH/

Encl.

NOTICE OF NON COMPLIANCE

Licensee Name

Radioactive Material License Number Number

Based on the results of the Wisconsin Department of Health & Family Services, Radiation Protection Section inspection of Licensee Name, license number RML Number conducted on Date, certain of your activities are not in compliance with Wisconsin Administrative Code, Chapter HFS 157 'Radiation Protection' as indicated below:

1.

Date

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

SUBJECT:

Dear Contact Person:

This refers to the inspection conducted Date at (facility name). The purpose of this inspection was an examination of activities conducted under your Radioactive Material License number License Number issued on Date as they relate to safety and compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.' and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, (number) apparent violation(s) was (were) identified and is (are being considered for escalated enforcement action in accordance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.' [The narrative that follows should briefly discuss the nature of the apparent violation(s).] Since the Virginia Department of Health (VDH) has not made a final determination in this matter, no Notice of Violation is being issued for these inspection findings at this time. In addition, please be advised that the number and characterization of apparent violations may change as a result of further VDH review.

An open (A closed) predecisional enforcement conference to discuss this (these) apparent violation(s) has been scheduled for (date) at (time) in (location). The decision to hold a predecisional enforcement conference does not mean that the VDH has determined that a violation has occurred or that enforcement action will be taken. This conference is being held to obtain information to assist the VDH in making an enforcement decision. This may include information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned. The conference will provide an opportunity for you to

provide your perspective on these matters and any other information that you believe the VDH should take into consideration in making an enforcement decision. In presenting your corrective action, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any forfeiture (monetary penalty) for the apparent violations.

[Insert the following paragraph for cases involving the loss, abandonment, or improper transfer or disposal of a sealed source or device.]

VDH should normally propose imposition of a forfeiture of at least the base amount for violations involving the loss, abandonment, or improper transfer or disposal of a sealed source or device. VDH may consider adjusting the forfeiture amount to a more appropriate base amount if a licensee can demonstrate that three times the actual cost of disposal would be significantly less than the base amount. Therefore, you may provide VDH information regarding the actual expected costs of authorized disposal for its consideration in making a final enforcement decision. However, VDH will not normally decrease the forfeiture to an amount below the lowest base forfeiture for such cases.

You will be advised by separate correspondence of the results of our deliberations on this matter. No response regarding the(se) apparent violation(s) is required at this time.

If you have any additional questions please feel free to contact Inspector at Inspector's Phone number or e-mail at Inspector's email address.

Sincerely,

Inspectors name
Radioactive Materials Program

September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your General License granted for the reciprocity request under Issuing Entity Radioactive Material License number Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

No items of noncompliance were observed during the course of this inspection.

Areas of your program that could be improved to meet nationally accepted standards of practice are addressed in the recommendations. Recommendations are included for areas of health and safety that should be reviewed (see enclosure).

If you have any questions or concerns regarding this inspection, please contact Inspector at
Inspector's Phone number or e-mail at Inspector's email address

Sincerely,

Inspectors name

Inspectors title

Radioactive Materials Program

RECOMMENDATIONS

Licensee
Licensing Entity Radioactive Material License Number Number

- 1.

September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your General License granted for the reciprocity request under Issuing Entity Radioactive Material License number Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with, 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

Based on the results of this inspection, certain of your activities were not conducted in full compliance as set forth in the enclosed notice of noncompliance.

Submit a written statement or explanation in reply including:

- (1) Corrective actions that have been taken by you and the results achieved.
- (2) Corrective actions which will be taken to avoid further items of noncompliance.
- (3) The date when full compliance will be achieved. This report shall be received by this office before Date.

This is to advise you that you are required to post the enclosed notice of non compliance of radiological working conditions and your response to 12 VAC 5-481-2260.

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail at Inspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

NOTICE OF NON COMPLIANCE

Licensee Name

Licenseing Entity Radioactive Material License Number Number

Based on the results of the Wisconsin Department of Health & Family Services, Radiation Protection Section inspection of Licensee Name, license number RML Number conducted on Date, certain of your activities are not in compliance with Wisconsin Administrative Code, Chapter HFS 157 'Radiation Protection' as indicated below:

1.

September 6, 2007

Name of Licensee
Attn: Licensee Contact
Addressee
Street Address
City, State Zip Code

Dear Contact Person:

This refers to the inspection conducted by Name of Inspector of this office on Date of activities authorized by § 32.1-25 and to the discussion of our findings with Name of Licensee contact at the conclusion of this inspection.

This inspection was an examination of the activities conducted under your General License granted for the reciprocity request under Radioactive Material License number Number, a selective examination of procedures and representative records, observations and interviews with personnel as they relate to radiation safety and to compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations.'

The inspection also included a review of the actions described in your letter dated *Date* regarding noncompliance identified during our inspection. We have no further questions regarding this matter.

Areas of your program that could be improved to meet nationally accepted standards of practice are addressed in the recommendations. Recommendations are included for areas of health and safety that should be reviewed (see enclosure).

Based on the results of this inspection, certain of your activities were not conducted in full compliance as set forth in the enclosed notice of noncompliance.

Submit a written statement or explanation in reply including:

- (1) Corrective actions that have been taken by you and the results achieved.
- (2) Corrective actions which will be taken to avoid further items of noncompliance.
- (3) The date when full compliance will be achieved. This report shall be received by this office before Date.

This is to advise you that you are required to post the enclosed notice of non compliance of radiological working conditions and your response to 12 VAC 5-481-2260.

If you have any questions or concerns regarding this inspection, please contact Inspector at Inspector's Phone number or e-mail at Inspector's email address

Sincerely,

Inspectors name
Inspectors title
Radioactive Materials Program

BPH/

Encl.

NOTICE OF NON COMPLIANCE

Licensee Name

Licenseing Entity Radioactive Material License Number Number

Based on the results of the inspection of Licensee Name, license number Number conducted on Date, certain of your activities are not in compliance with 12 VAC 5-481, 'Virginia Radiation Protection Regulations' as indicated below:

- 1.

RECOMMENDATIONS

Licensee

Licenseing Entity Radioactive Material License Number Number

VA Radioactive Materials License Number: _____

Please amend our radioactive materials license to add authorization to store the devices listed on our license at temporary job sites. As part of this request, we will:

ALL BOXES NEED TO BE CHECKED

- Perform and maintain documentation of radiation surveys to ensure that radiation levels are less than 2 mR in any one hour and 100 mR/yr at all temporary job site storage locations.
- Store the device at the temporary job site in a locked room, trailer or other secure location to prevent unauthorized removal of the device.
- Minimize exposures for occupational and non-occupational workers when selecting storage location.
- Limit storage at a temporary job site to 180 days per calendar year.

Printed Name and Title of Authorized Management Representative

Signature of Authorized Management Representative

Date: _____

Please send completed request to:

Michael Welling
Virginia Department of Health
Radioactive Materials Program
109 Governor Street, Room 730
P.O. Box 2448
Richmond, VA 23279

Fax: (804) 864-8175/8155

Comment [d1]: Include Fax #?



**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HEALTH**

RADIOACTIVE MATERIALS LICENSE

Under the Code of Virginia Section 32.1-229.3 and 12 VAC 5-481, Virginia Radiation Protection Regulations, and in reliance on statements and representations made by the licensee, a license is issued authorizing the licensee to receive, acquire, possess and transfer radioactive material designated below; to use the material for the purpose(s) and at the place(s) designated below; and to deliver or transfer the material to persons authorized to receive it in accordance with 12 VAC 5-481, Virginia Radiation Protection Regulations. This license is subject to all applicable rules and orders of the Virginia Department of Health now or hereafter in effect, and to any conditions specified below.

Licensee Name and Address		3. License No:	
		4. Amendment No.:	
		5. Expiration Date:	
1.			
2.			
6. Radioactive material	7. Chemical and/or physical form	8. Maximum amount of radioactive materials that the licensee may possess at any one time under this license:	9. Authorized Use:
A.	A.	A.	A.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at Address in Item 2 .
11. The Radiation Safety Officer for this license is
- 12.
13. The licensee is authorized to transport licensed material in accordance with the provisions of Chapter 481, Part XIII, 'Transportation of Radioactive Material.'

RADIOACTIVE MATERIALS LICENSE

License Number:

Amendment No:

14. Notwithstanding the requirements of 12 VAC 5-481-740, no sealed source shall be stored for a period of more than 3 years without being tested for leakage or contamination.
15. Sealed sources containing licensed material shall not be opened or removed from their source holders by the licensee.
16. The licensee shall conduct a physical inventory every 6 months, or at other intervals approved by VDH, to account for all sealed sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 5 years from the date of each inventory, and shall include the radionuclides, quantities, manufacturer's name and model numbers, and the date of the inventory.
- A. Each gauge shall be tested for the proper operation of the on-off mechanism (shutter) and indicator, if any, at intervals not to exceed 6 months or at such other intervals as specified in the certificate of registration issued by the NRC pursuant to 10 CFR 32.210 or the equivalent regulations of another Agreement State.
- B. Notwithstanding the periodic on-off mechanism (shutter) and indicator test, the requirement does not apply to gauges that are stored, not being used, and have the shutter lock mechanism in a locked position. Gauges that are exempted from this periodic test shall be tested before use.
17. The licensee may initially mount a gauge if permitted by the certificate of registration issued by the NRC or another Agreement State and under the following conditions:
- A. The gauge must be mounted in accordance with written instructions provided by the manufacturer;
- B. The gauge must be mounted in a location compatible with the "Conditions of Normal Use" and "Limitations and/or Other Considerations of Use" in the certificate of registration issued by the NRC or another Agreement State;
- C. The on-off mechanism (shutter) must be locked in the off position, if applicable, or the source must be otherwise fully shielded;
- D. The gauge must be received in good condition (i.e., package was not damaged); and
- E. The gauge must not require any modification to fit the proposed location.
- Mounting does not include electrical connection, activation or operation of the gauge. The source must remain fully shielded and the gauge may not be used until it is installed and made operational by a person specifically licensed by VDH, the NRC or another Agreement State to perform such operations.
18. A. The licensee may maintain, repair, or replace any device components that are not related to the radiological safety of the device containing radioactive material and that do not result in the potential for any portion of the body to come into contact with the primary beam or in increased radiation levels in accessible areas.
- B. The licensee may not maintain, repair, or replace any of the following device components: the sealed source, the source holder, source drive mechanism, on-off mechanism (shutter), shutter control, or shielding, or any other component related to the radiological safety of the device, except as provided

RADIOACTIVE MATERIALS LICENSE

License Number:

Amendment No:

otherwise by specific condition of this license.

19. Prior to initial use and after installation, relocation, dismantling, alignment, or any other activity involving the source or removal of the shielding, the licensee shall assure that a radiological survey is performed to determine radiation levels in accessible areas around, above, and below the gauge with the shutter open. This survey shall be performed only by person(s) authorized to perform such services by VDH, the U.S. Nuclear Regulatory Commission or an Agreement State.
THIS IS THE MOST COMMON OPTION. MAKE SURE IT IS THE WORDING YOU WANT!!
20. The licensee shall operate each device containing licensed material within the manufacturer's specified temperature and environmental limits such that the shielding and shutter mechanism of the source holder are not compromised.
21. The licensee shall assure that the shutter mechanism of each device is locked in the closed position during periods when a portion of an individual's body may be subject to the direct radiation beam. The licensee shall review and modify, as appropriate, its "lock-out" procedures whenever a new device is obtained to incorporate the device manufacturer's recommendations.
22. Except for maintaining labeling as required by Chapter 481 'Virginia Radiation Protection Regulations' Parts IV and XIII, the licensee shall obtain authorization from VDH before making any changes in the sealed source, device, or source-device combination that would alter the description or specifications as indicated in the respective Certificate(s) of Registration issued either by the NRC pursuant to 10 CFR 32.210 or by an Agreement State.
23. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 12 VAC 5-481-450 C for establishing decommissioning financial assurance.
24. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. Chapter 481 'Virginia Radiation Protection Regulations' shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the rule.

FOR THE VIRGINIA DEPARTMENT OF HEALTH

SIGNATURE

Director, Radioactive Materials Program

DATE



**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HEALTH**

RADIOACTIVE MATERIALS LICENSE

Under the Code of Virginia Section 32.1-229.3 and 12 VAC 5-481, Virginia Radiation Protection Regulations, and in reliance on statements and representations made by the licensee, a license is issued authorizing the licensee to receive, acquire, possess and transfer radioactive material designated below; to use the material for the purpose(s) and at the place(s) designated below; and to deliver or transfer the material to persons authorized to receive it in accordance with 12 VAC 5-481, Virginia Radiation Protection Regulations. This license is subject to all applicable rules and orders of the Virginia Department of Health now or hereafter in effect, and to any conditions specified below.

Licensee Name and Address		3. License Number:	
1.		4. Amendment No.: VA-	
2.		5. Expiration Date:	
6. Radioactive material	7. Chemical and/or physical form	8. Maximum amount of radioactive materials that the licensee may possess at any one time under this license:	9. Authorized Use:
A. Thallium-201	A. Any	A. 500 millicuries	A through E: Preparation and distribution of radioactive drugs to authorized recipients in accordance with 12 VAC 5-481-470 I. Preparation and distribution of radioactive drugs and radiochemicals to authorized recipients for non-medical use.
B. Indium-111	B. Any	B. 500 millicuries	
C. Gallium-67	C. Any	C. 500 millicuries	
D. Iodine-123	D. Any	D. 500 millicuries	
E. Flourine-18	E. Flourine-18	E. 5 curies	
F. Pd-103	F. Sealed source	F. 1 curie	

RADIOACTIVE MATERIALS LICENSE

License Number: VA-

Amendment No:

G. Cobalt-57	G. Any	G. 300 millicuries	<p>State and have been distributed in accordance with an NRC or Agreement State specific license authorizing distribution to persons specifically authorized by an NRC or Agreement State license to receive, possess, and use the devices.</p> <p>G. Calibration and checking of the licensee's instruments. Redistribution of sealed sources initially distributed by a manufacturer licensed pursuant to 12 VAC 5-481-470 J to authorized recipients and to authorized recipients for non-medical use.</p>
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CONDITIONS

10. Licensed material may be used or stored only at the licensee's facilities located at
11. The Radiation Safety Officer for this license is .
12. Licensed material shall be used by, or under the supervision of:
 - A. A pharmacist working or designated as an authorized nuclear pharmacist in accordance with 12 VAC 5-481-470 I 2.
 - B. Authorized Nuclear Pharmacists:
13. The licensee is authorized to transport licensed material in accordance with the provisions of Chapter 481, Part XIII, 'Transportation of Radioactive Material.'
14. This license does not authorize commercial distribution of licensed material to persons exempt from licensing pursuant to 12 VAC 5-481-400.
15. Sealed sources containing licensed material shall not be opened or sources removed from source holders by the licensee, except as specifically authorized.
16. The licensee shall conduct a physical inventory every 6 months, or at other intervals approved by VDH, to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 5 years from the date of each inventory and shall include the radionuclides, quantities, manufacturer's name and model numbers, and the date of the inventory.

RADIOACTIVE MATERIALS LICENSE

License Number: VA-

Amendment No:

17. The licensee is authorized to retrieve, receive and dispose of radioactive waste from it's customers limited to radiopharmacy supplied syringes and vials and their contents.
18. The licensee is authorized to hold radioactive material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash, provided:
- A. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
- B. A record of each such disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
19. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 12 VAC 5-481-450 C for establishing decommissioning financial assurance.
20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. Chapter 481 'Virginia Radiation Protection Regulations' shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

FOR THE VIRGINIA DEPARTMENT OF HEALTH

SIGNATURE
DIRECTOR RADIOACTIVE MATERIALS PROGRAM

DATE



COMMONWEALTH of VIRGINIA

Department of Health, Division of Radiological Health

ROBERT B. STROUBE, MD., M.P.H.
STATE HEALTH COMMISSIONER

109 GOVERNOR ST, ROOM 730
RICHMOND, VA 23219
804-864-8150

RECIPROCITY PRIVILEGES CHECKLIST

Instructions – The information listed below must be received by the Virginia Department of Health, Radioactive Materials Program. Failure to provide this information and fee will result in denial of reciprocity privileges. Any person who holds a specific license from the NRC or another agreement state, and issued by the agency having jurisdiction where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained, is hereby granted a general license.

Under the provisions of the Virginia Radiation Protection Regulations, 12 VAC 5-481, the activities authorized in such licensing document maybe performed within the Commonwealth of Virginia for a period not in excess of 180 days in any calendar year.

REQUIRED INFORMATION CHECKLIST

Annual information

- Letter requesting reciprocity recognition for the current calendar year.
- An up-to-date copy of the pertinent license.
- Documentation of training for individual(s) (authorized users)
- The fee for reciprocity listed in 12 VAC 5-490: \$ _____

Specific job information (at least 3 days prior to commencing work)

- Name of company for whom service will be performed
- Name of individual representing that company
- Telephone number of that individual
- Exact location where services will be performed
- Starting date
- Duration of service
- Type of service to be performed
- Name of individual(s) performing service
- In-state address where material will be stored (ex. Motel name and address)
- Identification of sources of radiation to be used



**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HEALTH**

RADIOACTIVE MATERIALS LICENSE

Under the Code of Virginia Section 32.1-229.3 and 12 VAC 5-481, Virginia Radiation Protection Regulations, and in reliance on statements and representations made by the licensee, a license is issued authorizing the licensee to receive, acquire, possess and transfer radioactive material designated below; to use the material for the purpose(s) and at the place(s) designated below; and to deliver or transfer the material to persons authorized to receive it in accordance with 12 VAC 5-481, Virginia Radiation Protection Regulations. This license is subject to all applicable rules and orders of the Virginia Department of Health now or hereafter in effect, and to any conditions specified below.

1. 2.		Licensee Name and Address		3. License Number:	
				4. Amendment No.:	
				5. Expiration Date:	
6. Radioactive material	7. Chemical and/or physical form	8. Maximum amount of radioactive materials that the licensee may possess at any one time under this license:	9. Authorized Use:		

CONDITIONS

- 10.
- 11.
- 12.
- 13.
- 14.

RADIOACTIVE MATERIALS LICENSE

License Number: _____

Amendment No: _____

SIGNATURE

Agreement State Program Supervisor

DATE

RADIOACTIVE MATERIALS LICENSE

License Number: _____

Amendment No: _____

B. The following individuals are authorized users for medical use:

Authorized UsersMaterial and Use

13. The licensee is authorized to transport licensed material in accordance with the provisions of Chapter 481, Part XIII, 'Transportation of Radioactive Material.'
14. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 12 VAC 5-481-450 C for establishing decommissioning financial assurance.
15. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. Chapter 481 'Virginia Radiation Protection Regulations' shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

FOR THE VIRGINIA DEPARTMENT OF HEALTH

SIGNATURE
DIRECTOR, RADIOACTIVE MATERIALS PROGRAM_____
DATE



**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HEALTH**

RADIOACTIVE MATERIALS LICENSE

Under the Code of Virginia Section 32.1-229.3 and 12 VAC 5-481, Virginia Radiation Protection Regulations, and in reliance on statements and representations made by the licensee, a license is issued authorizing the licensee to receive, acquire, possess and transfer radioactive material designated below; to use the material for the purpose(s) and at the place(s) designated below; and to deliver or transfer the material to persons authorized to receive it in accordance with 12 VAC 5-481, Virginia Radiation Protection Regulations. This license is subject to all applicable rules and orders of the Virginia Department of Health now or hereafter in effect, and to any conditions specified below.

Licensee Name and Address	3. License Number:
1.	4. Amendment No.:
2.	

In accordance with the Letter / Certificate of Disposition dated Date, and signed by Person signing, Radioactive Materials License Number License Number is hereby terminated.

FOR THE VIRGINIA DEPARTMENT OF HEALTH

SIGNATURE
AGREEMENT STATE PROGRAM SUPERVISOR

DATE



**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HEALTH**

RADIOACTIVE MATERIALS LICENSE

Under the Code of Virginia Section 32.1-229.3 and 12 VAC 5-481, Virginia Radiation Protection Regulations, and in reliance on statements and representations made by the licensee, a license is issued authorizing the licensee to receive, acquire, possess and transfer radioactive material designated below; to use the material for the purpose(s) and at the place(s) designated below; and to deliver or transfer the material to persons authorized to receive it in accordance with 12 VAC 5-481, Virginia Radiation Protection Regulations. This license is subject to all applicable rules and orders of the Virginia Department of Health now or hereafter in effect, and to any conditions specified below.

Licensee Name and Address		In accordance with letter dated February 20, 2007	
1. GeoEnvironmental Services, In. 2. PO Box 1555 Mechanicsville, VA 23116		3. License Number: VA-500-11 is hereby amended to read as follows:	
		4. Amendment No.: 04	
		5. Expiration Date: April 1, 2008	
6. Radioactive material	7. Chemical and/or physical form	8. Maximum amount of radioactive materials that the licensee may possess at any one time under this license:	9. Authorized Use:
A. Cobalt-57	A. Sealed source	A. 10 millicuries	A. For storage only pending disposal.

CONDITIONS

10. Licensed material shall be stored at the licensee's facilities located at 7068 Studley Road, Mechanicsville, Virginia.
11. The Radiation Safety Officer for this license is Kirk R. Sweeney.

RADIOACTIVE MATERIALS LICENSE

License Number: VA-

Amendment No:

23. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. Chapter 481 'Virginia Radiation Protection Regulations' shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the rule.

FOR THE VIRGINIA DEPARTMENT OF HEALTH

SIGNATURE

AGREEMENT STATE PROGRAM SUPERVISOR

DATE



CERTIFICATE OF DISPOSITION OF MATERIALS

Completion of this form is required to complete termination of a Radioactive Material License as outlined in 12 VAC 5-481-500. Failure to provide information will result in this request for termination of a specific license not being processed.

Instructions – Complete all items. Retain one copy and submit original to Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

CONTACT INFORMATION

Item 1 Name and Mailing Address of Applicant:	Item 2 Virginia Radioactive Material License Number
	Item 3 Contact Person – Name
	Contact Person - Telephone Number (Include area code) () - x

TERMINATION AND DISPOSITION INFORMATION

The following information is provided in accordance with 12 VAC 5-481-500. (Check all that apply)

- Item 4** All use of radioactive material authorized under the above referenced license has been terminated.
- Item 5** Radioactive contamination has been removed to the levels outlined in 12 VAC 5-481-1160 B.
- Item 6** All radioactive material previously procured and/or possessed under the authorization granted by the above referenced license has been disposed of as follows. (Check all that apply)
- Transferred to: Name Address

Who is (are) authorized to possess such material under Licensed Number:

Issued by (Licensing Agency):

- Decayed, surveyed and disposed of as non-radioactive waste.
- No radioactive material has ever been procured and/or possessed by the licensee under the authorization granted by the above referenced license.
- Other (Attach additional pages)

- Item 7** Attached are radiation surveys or equivalent as specified in 12 VAC 5-481-500 L. Specify the survey instrument(s) used and certify that each instrument is properly calibrated as required in 12 VAC 5-481-500 K.

Item 8 Records required to be maintained for the license termination requested are available at the following location(s):

Name:

Address:

Contact Person Telephone Number: () - X

Additional remarks (Attach additional pages if necessary.)

CERTIFICATION (To be completed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 10.

The undersigned, on behalf of the licensee, hereby certifies that licensable quantities of radioactive material under the jurisdiction of the Virginia Department of Health are not possessed by the licensee. It is therefore requested that the above referenced radioactive material license be terminated.

SIGNATURE - Applicant or Authorized Individual

Date signed

Print Name and Title of above signatory

VIRGINIA DEPARTMENT OF HEALTH
 Radioactive Materials Program
 109 Governor Street, Room 730
 Richmond, VA 23219
 (804) 864-8150



CUMULATIVE OCCUPATIONAL EXPOSURE HISTORY

Instructions and additional information on page 2. (Attach additional pages if necessary)

1. Name (Last, First, Middle Initial)				2. Identification Number		3. Id Type		4. Sex Male Female		5. Date Of Birth	
6. Monitoring Period		7. Licensee or Registrant Name			8. License or Registration Number			9. Record Estimate No Record		10. Routine PSE	
11. DDE	12. LDE	13. SDE, WB	14. SDE, ME	15. CEDE	16. CDE	17. TEDE	18. TODD				
6. Monitoring Period		7. Licensee or Registrant Name			8. License or Registration Number			9. Record Estimate No Record		10. Routine PSE	
11. DDE	12. LDE	13. SDE, WB	14. SDE, ME	15. CEDE	16. CDE	17. TEDE	18. TODD				
6. Monitoring Period		7. Licensee or Registrant Name			8. License or Registration Number			9. Record Estimate No Record		10. Routine PSE	
11. DDE	12. LDE	13. SDE, WB	14. SDE, ME	15. CEDE	16. CDE	17. TEDE	18. TODD				
19. SIGNATURE - Monitored Individual				20. Date Signed		21. Name of Certifying Organization					
22. SIGNATURE - Designee						23. Date Signed					

**Instructions and Additional Information Pertinent
To the completion of the cumulative occupational exposure history**
(All doses should be stated in milli-Sieverts or Rem)

<p>1. Type or print the full name of the monitored individual in the order of last name (include "Jr.," "Sr.," "III," etc.), first name, middle initial (if applicable).</p> <p>2. Enter the individual's identification number, including punctuation. This number should be the 9-digit social security number if at all possible. If the individual has no social security number, enter the number from another official identification such as a passport or work permit.</p> <p>3. Enter the code for the type of identification used as shown below:</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">CODE</th> <th style="text-align: left; border-bottom: 1px solid black;">ID TYPE</th> </tr> </thead> <tbody> <tr> <td>SSN</td> <td>U.S. Social Security Number</td> </tr> <tr> <td>PPN</td> <td>Passport Number</td> </tr> <tr> <td>CSI</td> <td>Canadian Social Insurance Number</td> </tr> <tr> <td>WPN</td> <td>Work Permit Number</td> </tr> <tr> <td>IND</td> <td>INDEX Identification Number</td> </tr> <tr> <td>OTH</td> <td>Other</td> </tr> </tbody> </table> <p>4. Check the box that denotes the sex of the individual being monitored.</p> <p>5. Enter the date of birth of the individual being monitored in the format MM/DD/YYYY.</p> <p>6. Enter the monitoring period for which this report is filed. The format should be MM/DD/YYYY-MM/DD/YYYY.</p> <p>7. Enter the name of the licensee, registrant, or facility not licensed by the Agency that provided monitoring.</p>	CODE	ID TYPE	SSN	U.S. Social Security Number	PPN	Passport Number	CSI	Canadian Social Insurance Number	WPN	Work Permit Number	IND	INDEX Identification Number	OTH	Other	<p>8. Enter the Agency license or registration number or numbers.</p> <p>9. Place an "X" in Record, Estimate, or No Record. Choose "Record" if the dose data listed represent a final determination of the dose received to the best of the licensee's or registrant's knowledge. Choose "Estimate" only if the listed dose data are preliminary and will be superseded by a final determination resulting in a subsequent report. An example of such an instance would be dose data based on selfreading dosimeter results and the licensee or registrant intends to assign the record dose on the basis of TLD results that are not yet available.</p> <p>10. Place an "X" in either Routine or PSE. Choose "Routine" if the data represent the results of monitoring for routine exposures. Choose "PSE" if the listed dose data represents the results of monitoring of planned special exposures received during the monitoring period. If more than one PSE was received in a single year, the licensee should sum them and report the total of all PSEs.</p> <p>11. Enter the deep dose equivalent (DDE) to the whole body.</p> <p>12. Enter the eye dose equivalent (LDE) recorded for the lens of the eye.</p> <p>13. Enter the shallow dose equivalent recorded for the skin of the whole body (SDE, WB).</p> <p>14. Enter the shallow dose equivalent recorded for the skin of the extremity receiving the maximum dose (SDE, ME).</p>	<p>15. Enter the committed effective dose equivalent (CEDE).</p> <p>16. Enter the committed dose equivalent (CDE) recorded for the maximally exposed organ.</p> <p>17. Enter the total effective dose equivalent (TEDE). The TEDE is the sum of items 11 and 15.</p> <p>18. Enter the total organ dose equivalent (TODE) for the maximally exposed organ. The TODE is the sum of items 11 and 16.</p> <p>19. The signature of the monitored individual on this form indicates that the information contained on the form is complete and correct to the best of his or her knowledge.</p> <p>20. Enter the date this form was signed by the monitored individual.</p> <p>21. [OPTIONAL] Enter the name of the licensee, registrant or facility (such as a Department of Energy facility) providing monitoring for exposure to radiation, or the employer if the individual is not employed by the licensee or registrant and the employer chooses to maintain exposure records for its employees.</p> <p>22. [OPTIONAL] Signature of the person designated to represent the licensee, registrant, or employer entered in item 21. The licensee, registrant or employer who chooses to countersign the form should have on file documentation of all the information on this form.</p> <p>23. [OPTIONAL] Enter the date this form was signed by the designated representative.</p>
CODE	ID TYPE															
SSN	U.S. Social Security Number															
PPN	Passport Number															
CSI	Canadian Social Insurance Number															
WPN	Work Permit Number															
IND	INDEX Identification Number															
OTH	Other															

VIRGINIA DEPARTMENT OF HEALTH
 Radioactive Materials Program
 109 Governor Street, Room 730
 Richmond, VA 23219
 (804) 864-8150



CERTIFICATE – USE OF DEPLETED URANIUM UNDER GENERAL LICENSE

12 VAC 5-481-420 C establishes a general license authorizing the use of depleted uranium contained in industrial products or devices for mass-volume applications. Persons who receive, acquire, possess, or use depleted uranium pursuant to the general license are required to submit this form within 30 days after the first receipt or acquisition of such depleted uranium to the Virginia Department of Health (VDH).

Instructions – Complete all items. Retain one copy and submit the original to Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 370, Richmond, VA 23219.

CONTACT INFORMATION

Item 1 Name And Mailing Address Of Applicant	Item 2 Contact Person - Name
	Item 3 Contact Person – Telephone Number (Include area code)

LOCATION OF USE

Item 4 Address(es) where depleted uranium will be used. Do not use Post Office Box. Attach separate sheets if necessary.	
Address	Telephone Number (Include area code):

CERTIFICATION (To be completed by an individual authorized to make binding commitments on behalf of the applicant.)

Item 5

The undersigned, on behalf of the applicant hereby certifies all the following:

- A. All information in this application is true and complete.
- B. Procedures have been developed and will be maintained to establish physical control over the depleted uranium, as described in 12 VAC 5-481-420 C. These procedures are designed to prevent transfer of the depleted uranium in any form, including scrap metal, to persons not authorized to receive the depleted uranium.
- C. I understand that VDH requires that any changes in the information furnished on this application and any transfer of depleted uranium, including transfer for disposal, be reported to VDH within 30 days (12 VAC 5-481-420 C).
- D. I have read and understand the provisions of the general license for use of depleted uranium, as specified in 12 VAC 5-481-420 C. I also understand that compliance with these provisions is required for all radioactive material that is received, acquired, possessed, used, or transferred under this general license.

SIGNATURE (Applicant or Authorized Individual)	Date signed
---	--------------------

Print Name and Title of above signatory

LEAVE THE SECTION BELOW BLANK – NUMBER TO BE ASSIGNED BY VDH

CERTIFICATE NUMBER	EXPIRES
SIGNATURE	DATE



NOTICE TO EMPLOYEES

The Virginia Department of Health (VDH) has established standards to protect you from hazards associated with radioactive materials and radiation emitting machines and has established certain provisions for the options of workers engaged in work under a VDH license or registration. In particular, the following information is available for your review:

Virginia Radiation Protection Regulations 12 VAC 5-481; Part IV - Standards for Protection Against Radiation;
Virginia Radiation Protection Regulations 12 VAC 5-481; Part X - Notices, Instructions and Reports to Workers; Inspections; and
Any other documents your employer must provide, as listed in "Your Employer's Responsibility" below.

A copy of the regulations specified above and the documents listed in Item 2 of "Your Employer's Responsibility" may be found at the following locations:

YOUR EMPLOYER'S RESPONSIBILITY

1. Apply the provisions of Virginia Radiation Protection Regulations to work involving radiation sources.
2. Post or otherwise make available to you a copy of the license, certificate of registration, conditions or documents incorporated into the license by reference and amendments thereto, and the operating procedures applicable to activities under the license or registration.
3. Post any notice of violation involving radiological working conditions, proposed imposition of civil penalty, or order issued pursuant to the Virginia Radiation Protection Regulations, and any response from the licensee or registrant.

YOUR RESPONSIBILITY AS A WORKER

1. Know the provisions of the Virginia Radiation Protection Regulations and the precautions, operating procedures, and emergency procedures applicable to the work in which you are engaged.
2. Observe the provisions for your own protection and protection of your co-workers.
3. Report unsafe working conditions or violations of the license or registration conditions or regulations to your employer or VDH.

WHAT IS COVERED BY THESE REGULATIONS

1. Limits on exposure to radiation and radioactive material in restricted and unrestricted areas;
2. Measures to be taken after accidental exposure;
3. Personnel monitoring, surveys, and equipment;
4. Caution signs, labels, and safety interlock equipment;
5. Exposure records and reports;
6. Options for workers regarding VDH inspections; and
7. Related matters.

REPORTS ON YOUR OCCUPATIONAL RADIATION DOSE HISTORY

1. 12 VAC 5-481 Sections 640, 700, and 710 establish limits for occupational dose resulting from exposure to radiation and concentrations of radioactive material in air and water. 12 VAC 5-481-2280 requires your employer to provide you a written report if you receive a dose in excess of those limits. While these are your maximum allowable limits, your employer is required to take steps to keep your radiation dose as far below limits as is reasonably achievable.
2. If the monitoring of your radiation dose is required by 12 VAC 5-481-760, your employer must provide a written report of your radiation dose:
 - a. Annually.
 - b. At your request, for the current year upon your termination of employment in work involving radiation or radioactive material.

INSPECTIONS

All licensed or registered activities are subject to inspection by VDH. Any worker or representative of workers who believes that a violation of Virginia Radiation Protection Regulations or license conditions has occurred in work under a license or registration with regard to radiological working conditions may request an inspection. The request must be in writing and sent to the address listed below. The request must describe the alleged violation in detail and must be signed by the worker or representative of workers. During inspections, VDH inspectors may confer privately with workers, and any worker may bring to the attention of the inspectors any past or present condition believed to have contributed to or to have caused a violation. Refer to 12 VAC 5-481-2310.

Direct all inquiries on matters outlined above to:

Virginia Department of Health, Radioactive Materials Program,
109 Governor Street, Room 730, Richmond, VA 23219.
Phone: (804) 864-8150

POSTING REQUIREMENTS

Copies of this notice must be posted in a sufficient number of places to permit individuals engaged in work under the license or registration to observe them on the way to or from the work location. Each posted copy must be conspicuous and replaced if defaced or altered. Refer to 12 VAC 5-481-2260.

VIRGINIA DEPARTMENT OF HEALTH
 Radioactive Materials Program
 109 Governor Street, Room 730
 Richmond, VA 23219
 (804) 864-8150



OCCUPATIONAL EXPOSURE RECORD PER MONITORING PERIOD

Read Instructions on Page 2 of this form before completing.

For annual written report required by 12 VAC 5-481-2280 C. This report is furnished to you under the provisions of Part X (12 VAC 5-481-2250 et seq.) of Chapter 481, Virginia Radiation Protection Regulations. You should preserve this report for further reference.

MONITORED INDIVIDUAL INFORMATION

1. Name of Individual (Last, First And Middle Initial)	2. Gender Male Female	3. Date of Birth (mm/dd/yyyy)
4. Identification Number	5. ID Type	

LICENSEE INFORMATION

6. Licensee or Registrant Name	7. License or Registration Number(s)
--------------------------------	--------------------------------------

MONITORING INFORMATION

8. Monitoring Period (mm/dd/yyyy) Start _____ End _____	9. Record Estimate	10. Routine PSE
--	-------------------------	----------------------

11. Intakes			
11a. Radionuclide	11b. Class	11c. Mode	11d. Intake in μ C

Doses (In REM)	
DEEP DOSE EQUIVALENT (DDE)	12.
EYE DOSE EQUIVALENT TO THE LENS OF THE EYE (LDE)	13
SHALLOW DOSE EQUIVALENT, WHOLE BODY (SDE, WB)	14.
COMMITTED DOSE EQUIVALENT, MAX EXTREMITY (SDE, ME)	15.
COMMITTED EFFECTIVE DOSE EQUIVALENT (CEDE)	16.
COMMITTED DOSE EQUIVALENT MAXIMALLY EXPOSED ORGAN (CDE)	17.
TOTAL EFFECTIVE DOSE EQUIVALENT (BLOCKS 12 + 16) (TEDE)	18.
TOTAL ORGAN DOSE EQUIVALENT MAX ORGAN (BLOCKS 11 + 16) (TODE)	19.
20. COMMENTS (Attach additional pages of necessary)	

CERTIFICATION

21. SIGNATURE – Designated Licensee or Registrant	22. Date Signed
---	-----------------

INSTRUCTIONS

1. Type or print the full name of the monitored individual, last name (include "Jr.", "Sr.", "III, etc.), first name, middle name and middle initial, if applicable.
2. Check the box that denotes the gender of the individual being monitored.
3. Enter the date of birth of the individual being monitored in the following format MM/DD/YYYY (e.g., 07/11/1952)
4. Enter the individual's identification number, including dashes, comas, etc. This number could be the 9-digit social security number. If the individual does not have a social security number, enter the number from other official identification such as passport or work permit.
5. Enter the code for the type of identification used as shown below:

Code	ID TYPE
SSN	U.S. Social Security Number
PPN	Passport Number
CSI	Canadian Social Insurance Number
WPN	Work Permit Number
IND	INDEX Identification Number
OTH	Other

6. Enter the name of the licensee or registrant.
7. Enter the Agency license or registration number or numbers.
8. Enter the monitoring period for which this report is filed. The format should be MM/DD/YYYY – MM/DD/YYYY.
9. Place an "X" in Record or Estimate. Choose "Record" if the dose data listed represents a final determination of the dose received to the best of the licensee's or registrants knowledge. Choose "Estimate" only if the listed dose data are preliminary and will be superseded by a final determination resulting in a subsequent report. An example of such an instance would be dose data based on self-reading dosimeter results and the licensee intends to assign the record dose on the basis of the TLD results that are yet available.
10. Place an "X" in either Routine or PSE. Choose "Routine" if the data represents the results of monitoring for routine exposures. Choose "PSE" if the dose data represents the results of monitoring of planned special exposures received during the monitoring period. If more than one PSE was received in a single year, the licensee or registrant should sum them and report the total of all PSEs.

- 11a. Enter the symbol for each radionuclide that resulted in an internal exposure recorded for the individual in the format "Xx###x," for instance Cs-139 or Tc-99m.
- 11b. Enter the lung clearance class.
- 11c. Enter the mode of intake. For inhalation, enter "H." For absorption through the skin, enter "B." For oral ingestion, enter "G." For injection, enter "J."
- 11d. Enter the intake of each radionuclide in μCi .
12. Enter the deep dose equivalent (DDE) to the whole body.
13. Enter the eye dose equivalent (LDE) recorded for the lens of the eye.
14. Enter the shallow dose equivalent record for the skin of the whole body (SDE, WB).
15. Enter the shallow dose equivalent record for the skin of the extremity receiving the maximum dose (SDE, ME).
16. Enter the committed effective dose equivalent (CEDE) or "NR" for "Not Required" or "NC" for "Not Calculated".
17. Enter the committed dose equivalent (CDE) recorded for the maximally exposed organ or "NR" for "Not Required" or "NC" for "Not Calculated".
18. Enter the total effective dose equivalent (TEDE). The TEDE is the sum of items 12 and 16.
19. Enter the total organ dose equivalent (TODE) for maximally exposed organ. The TODE is the sum of items 12 and 17.
20. In the space provided, or on attached sheets, enter additional information that might be needed to determine compliance with limits. An example might be to indicate that an overexposed report has been sent to the Agency in reference to the exposure report.
21. Signature of the person designated to represent the licensee or registrant.
22. Enter the date the form was completed.

VIRGINIA DEPARTMENT OF HEALTH
 Radioactive Materials Program
 109 Governor Street, Room 730
 Richmond, VA 23219
 (804) 864-8150

Virginia Department of Health
 Radioactive Materials Program
 (804) 864-8150



TRAINING, EXPERIENCE AND PRECEPTOR ATTESTATION – A (Radiation Safety Officer for Medical Use)

The Virginia Department of Health (VDH) is requesting disclosure of all information on this statement for the purpose of authorizing an individual to work with radioactive material. Failure to provide any information may result in denial or delay of authorizing an individual to work with radioactive material. Radiation Safety Officer for Medical Use

Instructions: Complete all applicable items. Refer to VAREG 'Guidance for Medical Use of Radioactive Material'. Use supplementary sheets where necessary. Retain one copy and submit original of the document to the Virginia Department of Health, Radioactive Materials Program, 109 Governor Street, Room 730, Richmond, VA 23219.

PART I TRAINING AND EXPERIENCE

Describe training and experience in sufficient detail to match the training and experience criteria in applicable regulations.

1. Name of Individual

2. Certification (attach copy of current certificate)

Specialty Board	Category	Month and Year Certified

Note: Item 3-5 do not need to be completed when using Board Certification to meet 12 VAC 5-481, Part VII training and experience requirements.

3. Classroom and Laboratory Training

Description of Training	Training Location	Clock Hours	Dates of Training
Radiation Physics and Instrumentation			
Radiation Protection			
Mathematics Pertaining to Use and Measurement of Radioactivity			
Radiation Biology			
Radiation Dosimetry			
Other			

4. Supervised Work Experience

Completed one year of full-time safety experience under the supervision of a Radiation Safety Officer for medical use.

Description of Experience	Dates of Experience
Shipping, Receiving and Performing Radiation Related Surveys	
Instrumentation	
Securing and Controlling Radioactive Material	
Using Administrative Controls to Avoid Mistakes	
Using Procedures to Prevent or Minimize Contamination and Using Proper Decontamination Procedures	
Using Emergency Procedures to Control Radioactive Material	
Disposal of Radioactive Material	

5. Supervising Individual – Identification and Qualifications

If more than one supervising individual is needed to meet requirements in 12 VAC 5-481, 'Virginia Radiation Protection Regulations', Part VII, 'Use of Radionuclides in the Healing Arts', provide the following information for each:

Supervisor meets the requirements of 12 VAC 5-481-1760 or (10) or equivalent NRC or Agreement State requirements.

Name of Supervising Individual

Name of License on which Supervising Individual is Authorized	Materials License Number (Indicate which state or if NRC)
---	---

PART II PRECEPTOR ATTESTATION

Note: This part must be completed by the individual's preceptor. If more than one preceptor is necessary to document experience, obtain a separate preceptor statement from each.

6. Preceptor Approval and Attestation

I am a radiation safety officer for a medical use licensee.

I attest that the individual named in Item 1:

has satisfactorily completed the training requirements in s. 12 VAC 5-481-1780.

AND

has achieved a level of radiation safety knowledge sufficient to independently function as a radiation safety officer for medical use of radioactive material.

Name of License on which Preceptor is Authorized	Materials License Number (Indicate which state or if NRC)
Print Name of Preceptor	

SIGNATURE - Preceptor	Date Signed



TRAINING, EXPERIENCE AND PRECEPTOR ATTESTATION STATEMENT – B
(Authorized User – Written Directive Not Required)

The Virginia Department of Health is requesting disclosure of all information on this statement for the purpose of authorizing an individual to work with radioactive material. Failure to provide any information may result in denial or delay of authorizing an individual to work with radioactive material.

Instructions: Complete all applicable items. Refer to VAREG “Guidance for Medical Use of Radioactive Material.” Use supplementary sheets where necessary. Retain one copy and submit original of the document to the Commonwealth of Virginia, Department of Health, 109 Governor Street, Post Office Box 2448, Richmond, VA 23218.

PART I TRAINING AND EXPERIENCE

Describe training and experience in sufficient detail to match the training and experience criteria in applicable regulations.

1. Name of Individual

2. State Licensure

A copy of license to practice Medicine in Virginia is attached

3. Certification (attach copy of current certificate)

Specialty Board	Category	Month and Year Certified

Note: Items 4-6 do not need to be completed when using Board Certification to meet 12 VAC 5-481 Part VII, training and experience requirements.

4. Classroom and Laboratory Training.

Description of Training	Location	Clock Hours	Dates of Training
Radiation Physics and Instrumentation			
Radiation Protection			
Mathematics Pertaining to Use and Measurement of Radioactivity			
Chemistry of Radioactive Material for Medical Use			
Radiation Biology			

5. Supervised Work Experience

Description of Experience	Dates and Clock Hours of Experience
Ordering, receiving and unpacking radioactive materials	
Instrumentation and radiation surveys	
Calculating, measuring and safely preparing dosages	
Using administrative controls to prevent a medical event	
Containing spilled radioactive material and using proper decontamination procedures	
Administering dosages of radioactive drugs to patients or human research subjects	
Eluting generator systems, testing the eluate and processing with reagent kits to prepare labeled radioactive drugs. <input type="checkbox"/> N/A (Only 12 VAC 5-481-1900 Authorization sought)	

6. Supervising Individual – Identification and Qualifications

The training and experience indicated above was obtained under the supervision of (if more than one supervising individual is needed to meet requirements in 12 VAC 5-481 “Virginia Radiation Protection” Part VII, “Use of Radionuclides in the Healing Arts” provide the following information for each).

- Supervisor meets the requirements of 12 VAC 5-481-1780, 12 VAC 5-481-1910 or 12 VAC 5-481-1940 or equivalent NRC or another Agreement State requirements for the type(s) of use for which the person named in Item 1 is seeking authorization.

Name of Supervising Individual

Name of License on which Supervising Individual is Authorized

Materials License Number –(Indicate which State or if NRC)

PART II – PRECEPTOR ATTESTATION

Note: This part must be completed by the individual's preceptor. If more than one preceptor is necessary to document experience, obtain a separate preceptor statement from each.

7. Preceptor Approval and Attestation

I meet VDH's requirements to be a preceptor authorized user for 12 VAC 5-481-1900 or 12 VAC 5-481-1920 uses.

I attest that the individual named in Item 1:

Has satisfactorily completed the training requirements in 12 VAC 5-481-1910 and 12 VAC 5-481-1920;

AND

Has achieved a level of competency sufficient to independently function as an authorized user for 12 VAC 5-481-1710 and/or 12 VAC 5-481-1940 uses.

Name of License on which Preceptor is Authorized

Materials License Number –(Indicate which State or if NRC)

Print Name of Preceptor

SIGNATURE - Preceptor

Date Signed



**TRAINING, EXPERIENCE AND PRECEPTOR ATTESTATION STATEMENT – C
 (Unsealed Radioactive Material Requiring Written Directive)**

The Virginia Department of Health (VDH) is requesting disclosure of all information on this statement for the purpose of authorizing an individual to work with radioactive material. Failure to provide any information may result in denial or delay of authorizing an individual to work with radioactive material. For authorized user of unsealed radioactive material requiring a written directive (**12 VAC 5-481-1950**).

Instructions: Complete all applicable items. Refer to VAREG "Guidance for Medical Use of Radioactive Material." Use supplementary sheets where necessary. Retain one copy and submit original of the document to the Commonwealth of Virginia, Department of Health, 109 Governor Street, Post Office Box 2448, Richmond, VA 23218.

PART I TRAINING AND EXPERIENCE

Describe training and experience in sufficient detail to match the training and experience criteria in applicable regulations.

1. Name of Individual

2. State Licensure

A copy of license to practice Medicine in Virginia is attached

3. Certification (attach copy of current certificate)

Specialty Board	Category	Month and Year Certified

Note: Items 4-6 do not need to be completed when using Board Certification to meet **12 VAC 5-481, Part VII**, training and experience requirements.

4. Classroom and Laboratory Training.

Description of Training	Location	Clock Hours	Dates of Training
Radiation Physics and Instrumentation			
Radiation Protection			
Mathematics Pertaining to Use and Measurement of Radioactivity			
Chemistry of Radioactive Material for Medical Use			
Radiation Biology			

5. Supervised Work Experience

Description of Experience	Dates and Clock Hours of Experience
Ordering, receiving and unpacking radioactive materials and performing the related radiation surveys.	
Performing quality control procedures on instruments used to determine the activity of dosages and performing checks for proper operation of survey meters.	
Calculating, measuring and preparing patient or human research subject dosages.	
Using administrative controls to prevent a medical event involving the use of unsealed material.	
Using procedures to contain spilled radioactive material and using proper decontamination procedures.	

6. Supervised Clinical Case Experience

Oral Administration

Radionuclides	Type of Use	Number of Cases Involving Personal Participation	Location	Date of Experience

Parenteral Administration

Radionuclides	Type of Use	Number of Cases Involving Personal Participation	Location	Date of Experience

7. Supervising Individual – Identification and Qualifications

If more than one supervising individual is needed to meet requirements in 12 VAC 5-481, ‘Virginia Radiation Protection Regulations’, Part VII, ‘Use of Radionuclides in the Healing Arts’, provide the following information for each:

- Supervisor meets the requirements of 12 VAC 5-481-1980, or equivalent NRC or another Agreement State requirements for the type(s) of use for which the individual named in Item 1 is seeking authorization.

Name of Supervising Individual

Name of License on which Supervising Individual is Authorized

Materials License Number –(Indicate which State or if NRC)

PART II – PRECEPTOR ATTESTATION

Note: This part must be completed by the individual’s preceptor. If more than one preceptor is necessary to document experience, obtain a separate preceptor statement from each.

8. Preceptor Approval and Attestation

- I meet VDH’s requirements to be a preceptor authorized user for 12 VAC 5-481-1900 or 12 VAC 5-481-1940 uses.

I attest that the individual named in Item 1:

- Has satisfactorily completed the training requirements in (check all applicable):

12 VAC 5-481-1980 (Use of radioactive material authorized by 12 VAC 5-481-??)

12 VAC 5-481-1990 (Limited to use of sodium iodide I-131 in quantities \leq 33 mCi)

12 VAC 5-481-2000 (Limited to use of sodium iodide I-131 in quantities \geq 33 mCi)

12 VAC 5-481-1980 (Limited to parental administration of radioactive material authorized by 12 VAC 5-481-1950.

AND

- Has received a level of competency sufficient to function independently as an authorized user for the above medical use(s).

Name of License on which Preceptor is Authorized

Materials License Number –(Indicate which State or if NRC)

Print Name of Preceptor

SIGNATURE - Preceptor

Date Signed



TRAINING, EXPERIENCE AND PRECEPTOR ATTESTATION STATEMENT – D
(Authorized User for Manual Brachytherapy Sources)

The Virginia Department of Health is requesting disclosure of all information on this statement for the purpose of authorizing an individual to work with radioactive material. Failure to provide any information may result in denial or delay of authorizing an individual to work with radioactive material.

Instructions: Complete all applicable items. Refer to VA "Guidance for Medical Use of Radioactive Material." Use supplementary sheets where necessary. Retain one copy and submit original of the document to the Commonwealth of Virginia, Department of Health, 109 Governor Street, Post Office Box 2448, Richmond, VA 23218.

PART I TRAINING AND EXPERIENCE

Describe training and experience in sufficient detail to match the training and experience criteria in applicable regulations.

1. Name of Individual

2. State Licensure

A copy of license to practice Medicine in Virginia is attached

3. Certification (attach copy of current certificate)

Specialty Board	Category	Month and Year Certified

Note: Items 4-8 do not need to be completed when using Board Certification to meet 12 VAC 5-481, Part VII, training and experience requirements.
 Note: Items 4-6 do not need to be completed for individuals requesting ophthalmic use only.

4. Classroom and Laboratory Training

Description of Training	Location	Dates and Clock Hours of Training
Radiation Physics and Instrumentation		
Radiation Protection		
Mathematics Pertaining to Use and Measurement of Radioactivity		
Radiation Biology		

5. Supervised Work Experience

Description of Experience	Location	Dates of Experience
Ordering, receiving and unpacking radioactive materials		
Checking survey meters for proper operation and performing radiation surveys		
Preparing, implanting and removing brachytherapy sources		
Maintaining running inventories of radioactive materials on hand		
Using administrative controls to avoid medical events in the administration of radioactive material.		

6. Supervised Clinical Experience in Radiation Oncology

Description of Experience	Location	Dates of Experience

7a. Training and Experience for Ophthalmic uses of Strontium-90 under 12 VAC 5-481-2010

N/A

Classroom and Laboratory training for Ophthalmic uses of Strontium-90

Description of Experience	Location	Dates of Experience
Radiation Physics and Instrumentation		
Radiation Protection		
Mathematics Pertaining to Use and Measurement of Radioactivity		
Radiation Biology		

7b. Supervised Clinical Training for Ophthalmic use of Strontium-90.

N/A

Description of Topics	Number of Cases Involving Personal Participation	Location	Dates of Experience
Examination of each person to be treated			
Calculation of the dose to be administered.			
Administration of Dose			
Follow-up and review of each individual's case history			

8. Supervising Individual – Identification and Qualifications

If more than one supervising individual is needed to meet requirements in 12 VAC 5-481, 'Virginia Radiation Protection Regulations', Part VII, 'Use of Radionuclides in the Healing Arts', provide the following information for each.

Supervisor meets the requirements of 12 VAC 5-481-2010 or 12 VAC 5-481-220 or equivalent NRC or another Agreement State requirements for the type(s) of use for which the person named in Item 1 is seeking authorization.

Name of Supervising Individual

Name of License on which Supervising Individual is Authorized

Materials License Number –(Indicate which State or if NRC)

PART II – PRECEPTOR ATTESTATION

Note: This part must be completed by the individual’s preceptor. If more than one preceptor is necessary to document experience, obtain a separate preceptor statement from each.

9. Preceptor Approval and Attestation

I meet VDH requirements to be a preceptor authorized user for the type(s) of use for which the individual named in Item 1 is seeking authorization.

N/A **Manual Brachytherapy**

Has satisfactorily completed the training requirements in **12 VAC 5-481-2010**;

AND

Has achieved a level of competency sufficient to independently function as an authorized user of manual brachytherapy sources for the medical uses authorized under **12 VAC 5-481-2010**.

N/A **Ophthalmic Uses of Strontium-90**

I attest that the individual named in Number 1 has:

Satisfactorily completed the training requirements in **12 VAC 5-481-2010**

Achieved a level of competency sufficient to function independently as an authorized user of Strontium-90 for ophthalmic use.

Name of License on which Preceptor is Authorized

Materials License Number –(Indicate which State or if NRC)

Print Name of Preceptor

SIGNATURE - Preceptor

Date Signed



TRAINING, EXPERIENCE AND PRECEPTOR ATTESTATION STATEMENT – E
(Authorized User of Remote Afterloader, Teletherapy or Gamma Stereotactic Radiosurgery Units)

The Virginia Department of Health (VDH) is requesting disclosure of all information on this statement for the purpose of authorizing an individual to work with radioactive material. Failure to provide any information may result in denial or delay of authorizing an individual to work with radioactive material. For authorized user of remote afterloader, teletherapy, or gamma stereotactic radiosurgery units (**12 VAC 5-481-2040**).

Instructions: Complete all applicable items. Refer to VA "Guidance for Medical Use of Radioactive Material." Use supplementary sheets where necessary. Retain one copy and submit original of the document to the Commonwealth of Virginia, Department of Health, 109 Governor Street, Post Office Box 2448, Richmond, VA 23218.

PART I TRAINING AND EXPERIENCE

Describe training and experience in sufficient detail to match the training and experience criteria in applicable regulations.

1. Name of Individual

2. State Licensure

A copy of license to practice Medicine in Virginia is attached

3. Certification (attach copy of current certificate)

Specialty Board	Category	Month and Year Certified

4. Device-Specific Training

Documentation of device-specific training is attached.

5. Classroom and Laboratory Training

Individuals who are using Board Certification to meet **12-VAC 5-481 Part VII** training and experience requirements do no need to complete Items 5-8.

Description of Training	Location	Dates and Clock Hours of Training
Radiation Physics and Instrumentation		
Radiation Protection		
Mathematics Pertaining to Use and Measurement of Radioactivity		
Radiation Biology		

6. Supervised Work Experience

Description of Experience	Location	Dates and Clock Hours of Experience
Reviewing Full Calibration Measurements and Periodic Spot Checks		
Preparing Treatment Plans and Calculating Treatment Times and Doses		
Using Administrative Controls to Prevent a Medical Event of the Abnormal Operation of Medical Unit or Console		
Checking and Using Survey Meters		
Selecting the Proper Dose and How it is to be Administered		

7. Supervised Clinical Experience in Radiation Therapy

Type of Use	Number of Cases	Location	Dates of Experience

8. Supervising Individual – Identification and Qualifications

If more than one supervising individual is needed to meet requirements in 12 VAC 5-481, ‘Virginia Radiation Protection Regulations’, Part VII, ‘Use of Radionuclides in the Healing Arts’, provide the following information for each.

- Supervisor meets the requirements of 12 VAC 5-481-2040 or equivalent NRC or another Agreement State requirements for the type(s) of use for which the person named in Item 1 is seeking authorization.

Name of Supervising Individual

Name of License on which Supervising Individual is Authorized

Materials License Number –(Indicate which State or if NRC)

PART II – PRECEPTOR ATTESTATION

Note: This part must be completed by the individual’s preceptor. If more than one preceptor is necessary to document experience, obtain a separate preceptor statement from each.

9. Preceptor Approval and Attestation

- I am an authorized medical physicist authorized for the type(s) of use for which the individual named in Item 1 is seeking authorized medical physicist status.

I attest that the individual named in Item 1

- Has satisfactorily completed the training requirements in 12 VAC 5-481-2040;

AND

- Has achieved a level of competency sufficient to independently function as an authorized medical physicist for each type of therapeutic medical unit for which the individual is requesting authorized medical physicist status.

Name of License on which Preceptor is Authorized

Materials License Number –(Indicate which State or if NRC)

Print Name of Preceptor

SIGNATURE - Preceptor

Date Signed

Virginia Department of Health
 Radioactive Materials Program
 (804) 864-8150



**TRAINING, EXPERIENCE AND PRECEPTOR ATTESTATION STATEMENT – F
 (Authorized Medical Physicist)**

The Virginia Department of Health (VDH) is requesting disclosure of all information on this statement for the purpose of authorizing an individual to work with radioactive material. Failure to provide any information may result in denial or delay of authorizing an individual to work with radioactive material. For authorized medical physicist.

Instructions: Complete all applicable items. Refer to VA "Guidance for Medical Use of Radioactive Material." Use supplementary sheets where necessary. Retain one copy and submit original of the document to the Commonwealth of Virginia, Department of Health, 109 Governor Street, Post Office Box 2448, Richmond, VA 23218.

PART I TRAINING AND EXPERIENCE

Describe training and experience in sufficient detail to match the training and experience criteria in applicable regulations.

1. Name of Individual	2. Authorization requested (e.g. Sr-90 ophthalmic use, gamma knife, HDR)
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3. Certification (attach copy of current certificate)		
Specialty Board	Category	Month and Year Certified

Note: Items 4-6 do not need to be completed when using Board Certification to meet 12-VAC 5-481 Part VII, training and experience requirements.

4. Formal Training		
Degree and Area of Study	Name and Location of Program with corresponding Materials License Number	Dates

5. Supervised Work Experience			
Description of Experience	Dates of Experience	Description of Experience	Dates of Experience
Performing sealed source leak test and inventories		Hands on device operation	
Performing decay correction		Safety procedure	
Performing calibrations and periodic spot checks		Clinical use	
Conducting radiation surveys		Operation of a treatment planning system	

6. Supervising Individual – Identification and Qualifications

If more than one supervising individual is needed to meet requirements in 12-VAC 5-481 Part VII, provide the following information for each.

Supervisor meets the requirements of **12 VAC 5-481-1770** or equivalent NRC or another Agreement State requirements for the type(s) of use for which the person named in Item 1 is seeking authorization.

Name of Supervising Individual

Name of License on which Supervising Individual is Authorized

Materials License Number –(Indicate which State or if NRC)

PART II – PRECPTOR ATTESTATION

Note: This part must be completed by the individual’s preceptor. If more than one preceptor is necessary to document experience, obtain a separate preceptor statement from each.

7. Preceptor Approval and Attestation

I am an authorized medical physicist authorized for the type(s) of use for which the individual named in Item 1 is seeking authorized medical physicist status.

I attest that the individual named in Item 1:

Has satisfactorily completed the training requirements in **12 VAC 5-481-1770**;

AND

Has achieved a level of competency sufficient to independently function as an authorized medical physicist for each type of therapeutic medical unit for which the individual is requesting authorized medical physicist status.

Name of License on which Preceptor is Authorized

Materials License Number –(Indicate which State or if NRC)

Print Name of Preceptor

SIGNATURE - Preceptor

Date Signed

Virginia Department of Health
 Radioactive Materials Program
 (804) 864-8150



**TRAINING, EXPERIENCE AND PRECEPTOR ATTESTATION STATEMENT – G
 (Authorized Nuclear Pharmacist)**

The Virginia Department of Health is requesting disclosure of all information on this statement for the purpose of authorizing an individual to work with radioactive material. Failure to provide any information may result in denial or delay of authorizing an individual to work with radioactive material.

Instructions: Complete all applicable items. Refer to VA "Guidance for Medical Use of Radioactive Material." Use supplementary sheets where necessary. Retain one copy and submit original of the document to the Commonwealth of Virginia, Department of Health, 109 Governor Street, Post Office Box 2448, Richmond, VA 23218.

PART I TRAINING AND EXPERIENCE

Describe training and experience in sufficient detail to match the training and experience criteria in applicable regulations.

Name of Individual

2. State Licensure

A copy of license to practice pharmacy in Virginia is attached.

3. Certification (attach copy of current certificate)

Specify Board	Category	Month and Year Certified

Note: Items 4-6 do not need to be completed when using Board Certification to meet **12 VAC 5-481 Part VII**, training and experience requirements.

4. Classroom and Laboratory Training

Description of Training	Training Location	Clock Hours	Dates of Training
Radiation Physics and Instrumentation	,	-	
Radiation Protection	,	-	
Mathematics Pertaining to Use and Measurement of Radioactivity	,	-	
Radiation Biology	,	-	

5. Supervised Work Experiences

Description of Experience	Dates of Experience
Shipping, receiving and performing radiation related surveys	
Using and performing checks for proper operation of survey meters and instruments used to determine the activity of dosages.	
Calculating, assaying and safely preparing dosages.	
Using administrative controls to avoid medical events in the administration of radioactive material.	
Using procedures to prevent or minimize radioactive contamination and using proper decontamination procedures.	

PART II – PRECEPTOR ATTESTATION

Note: This part must be completed by the individual's preceptor. If more than one preceptor is necessary to document experience, obtain a separate preceptor statement from each.

6. Preceptor Approval and Attestation

I am an authorized nuclear pharmacist.

I attest that the individual named in Item 1:

Has satisfactorily completed the training requirements in **12 VAC 5-481-1770**;

AND

Has achieved a level of competency sufficient to function independently as an authorized nuclear pharmacist.

Name of License on which Preceptor is Authorized	Materials License Number –(Indicate which State or if NRC)
--	--

Print Name of Preceptor	
SIGNATURE - Preceptor	Date Signed



TRAINING, EXPERIENCE AND PRECEPTOR STATEMENT

The Virginia Department of Health (VDH) is requesting disclosure of all information on this statement for the purpose of authorizing an individual to work with radioactive material. Failure to provide any information may result in denial or delay of authorizing an individual to work with radioactive material.

Instructions: Complete all applicable items. Refer to VAREG "Guidance for Medical Use of Radioactive Material." Use supplementary sheets where necessary. Retain one copy and submit original of the document to the Virginia Department of Health, Radioactive Materials Program, 109 Governor Street Room 730 Richmond, VA 23219.

PART I TRAINING AND EXPERIENCE

Describe training and experience in sufficient detail to match the training and experience criteria in applicable regulations.

1. Name of Individual, Proposed Authorization and Applicable Training Requirements

2. Physician, Podiatrist, Dentist, or Pharmacist – State or Territory Where Licensed

3. Certification (attach copy of current certificate)

Specialty Board	Category	Month and Year Certified

4. Didactic or Classroom and Laboratory Training (optional for Medical Physicists)

The following does not need to be completed when using Board Certification to meet 12 VAC 5-481 'Virginia Radiation Protection Regulations', Part VII 'Use of Radionuclides In The Healing Arts' training and experience requirements.

Description of Training	Location	Clock Hours	Dates of Training
Radiation Physics and Instrumentation			
Radiation Protection			
Mathematics Pertaining to Use and Measurement of Radioactivity			
Chemistry of Radioactive Material for Medical Use			
Radiation Biology			
Other			

6. Formal Training (applies to Medical Physicist and Therapy Physicians)

Degree, Area of Study or Residency Program	Name of Program and Location with Corresponding Materials License Number	Dates	Name of Organization that Approved the Program and Applicable Regulation 10 CFR 35.490 or 12 VAC 5-481-2010

7. Radiation Safety Officer – One-Year Full-Time Work Experience (in areas identified in number 5a and 5b)

- Yes** Completed one year of full time radiation safety experience (in all areas identified in number 5a) under the supervision of _____ the RSO for License No. _____
- N/A**

8. Medical Physicist – One-Year Full-Time Training/Work Experience

- Yes** A. Completed one-year of full-time training in therapeutic radiological physics (in all areas identified in number 5a) under the supervision of _____ who meets the requirements for Authorized Medical Physicists; and
- N/A**
- Yes** B. Completed one-year of full time work experience (for areas in number 5a) for 12 VAC 5-481 ‘Virginia Radiation Protection Regulations’.
- N/A** _____ modality(ies) under the supervision of _____ who meets requirements of Authorized Medical Physicists for 12 VAC 5-481 ‘Virginia Radiation Protection Regulations’. _____ modality(ies).

9. Supervising Individual – Identification and Qualifications

The training and experience indicated above was obtained under the supervision of (if more than one supervising individual is needed to meet requirements in 12 VAC 5-481 ‘Virginia Radiation Protection Regulations’, Part VII, provide the following information for each):

Name of Supervisor	Supervisor is <input type="checkbox"/> Authorized User <input type="checkbox"/> Radiation Safety Officer <input type="checkbox"/> Authorized Medical Physicist <input type="checkbox"/> Authorized Nuclear Pharmacist
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Supervisor meets requirement of 10 CFR, Part 35, Section(s) _____ or 12 VAC 5-481 ‘Virginia Radiation Protection Regulations’, Part VII ‘Use of Radionuclides In The Healing Arts,’ section(s) _____ for medical use in 10 CFR Part 35, Section(s) _____ or 12 VAC 5-481 ‘Virginia Radiation Protection Regulations’, Part VII ‘Use of Radionuclides In The Healing Arts,’ Section(s) _____

Address of Supervising Individual	Materials License Number (Indicate which state or if NRC)
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PART II PRECEPTOR STATEMENT

NOTE: This part must be completed by the individual’s preceptor. If more than one preceptor is necessary to document experience, obtain a separate preceptor statement from each. This part is not required to meet the training requirements in 12 VAC 5-481-2030.

- Yes** **10a.** The individual named in number 1 has satisfactorily completed the training requirements in 10 CFR, Part 35, Section(s) _____ And Paragraph(s) _____ Or 12 VAC 5-481-1700.
- N/A**

- Yes** 10.b The individual named in number 1 is competent to independently function as an authorized _____ for 12 VAC 5-481
- N/A** 'Virginia Radiation Protection Regulations' _____ uses (or units).

11. Preceptor Approval and Certification

I certify the approval of number 10a and 10b, and certify that I meet the VDH requirement of 12 VAC 5-481 'Virginia Radiation Protection Regulations' _____ or the equivalent Agreement State or NRC requirements to be a preceptor:

- Authorized User Radiation Safety Officer Medical Physicist Nuclear Pharmacist

For the following uses of Radioactive material(s) under 12 VAC 5-481 'Virginia Radiation Protection Regulations'

Address of Preceptor

Materials License Number (Indicate which state or if NRC)

Print Name of Preceptor

SIGNATURE – Preceptor

Date Signed