

NRC FORM 313  
(05-2012)  
10 CFR 30, 32, 33,  
34, 35, 36, 39, and 40

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0120

EXPIRES: (05/31/2015)

### APPLICATION FOR MATERIALS LICENSE

Estimated burden per response to comply with this mandatory collection request: 4.3 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Information Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects.Resource@nrc.gov](mailto:infocollects.Resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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

**APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:**

OFFICE OF FEDERAL & STATE MATERIALS AND ENVIRONMENTAL MANAGEMENT PROGRAMS  
DIVISION OF MATERIALS SAFETY AND STATE AGREEMENTS  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001

**ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:**

**IF YOU ARE LOCATED IN:**

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,

**SEND APPLICATIONS TO:**

LICENSING ASSISTANCE TEAM  
DIVISION OF NUCLEAR MATERIALS SAFETY  
U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PA 19408-2713

**IF YOU ARE LOCATED IN:**

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

MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

19-31474-01

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING,

**SEND APPLICATIONS TO:**

NUCLEAR MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
1600 E. LAMAR BOULEVARD  
ARLINGTON, TX 76011-4511

P3  
03038547

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

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

- A. NEW LICENSE
- B. AMENDMENT TO LICENSE NUMBER
- C. RENEWAL OF LICENSE NUMBER

**2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)**

Smiths Detection  
9639 Doctor Perry Road, Suite 101N  
Jjansville, MD 21754

2012 JUL 23 PM 1:47  
RECEIVED REGION I

**3 ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED**

Temporary job sites under NRC Jurisdiction

**4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION**

Peter Wallace

BUSINESS TELEPHONE NUMBER  
(202) 641-3949

BUSINESS CELLULAR TELEPHONE NUMBER  
(202) 641-3949

**BUSINESS EMAIL ADDRESS**

[peter.wallace@smithsdetection.com](mailto:peter.wallace@smithsdetection.com)

**SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE**

**5 RADIOACTIVE MATERIAL**

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

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

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

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

**9. FACILITIES AND EQUIPMENT.**

**10 RADIATION SAFETY PROGRAM**

**11 WASTE MANAGEMENT**

**12. LICENSE FEES (See 10 CFR 170 and Section 170.31)**

FEE CATEGORY	AMOUNT ENCLOSED \$

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

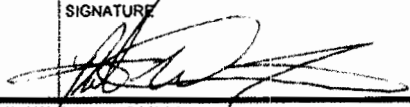
THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION

**CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE**

Robert Wisner, Director Service Operations Americas

**SIGNATURE**



**DATE**

7/17/2012

**FOR NRC USE ONLY**

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

**Smiths Detection - Ijamsville**

**NRC Temporary Job Site  
Radiation Protection Program**

**Prepared In Support of the Possession and Servicing of Devices  
Containing IMS Cells**

**Rev 3  
July 2012**

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# Smiths Detection - Ijamsville NRC Temporary Job Site Radiation Protection Program

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## **1 Organization for Control of Radiation and Radioactive Materials**

- 1.1 Licensed radioactive materials will be used at temporary job sites in the United States where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material, including areas of exclusive Federal jurisdiction within Agreement States. If the jurisdiction status of a Federal facility within an Agreement State is unknown, Smiths Detection Ijamsville will contact the Federal agency controlling the job site in question to determine whether the proposed job site is an area of exclusive Federal jurisdiction.
- 1.2 The Radiation Protection Program is designed to provide safety for personnel, property, the environment and the public for use of radioactive materials used in sealed source/devices. The program is under the direction of the Radiation Safety Officer (RSO).
- 1.3 Workers that perform service of devices containing radioactive material must receive authorization from the Radiation Safety Officer.
- 1.4 Annually, senior management of will commission an audit to be performed by the Radiation Safety Officer or by a consultant that specializes in Radiation Safety. The results of the audit will be provided to senior management. The audit will address the following areas of the radiation safety program:
  - a. ALARA
  - b. Audit History
  - c. Organization and Scope of Program
  - d. Training, Retraining, and Instructions to Workers
  - e. Facilities
  - f. Materials
  - g. Inventories
  - h. Radiation Surveys and Measurements
  - i. Receipt and Transfer of Radioactive Material (including waste disposal)
  - j. Transportation
  - k. Personnel Radiation Protection
  - l. Auditor's Independent Measurements
  - m. Notification and Reports
  - n. Posting and Labeling
  - o. Recordkeeping for Decommissioning
  - p. Bulletins and Information Notices
  - q. Special License Conditions or Issues
  - r. Problems or Deficiencies Noted
  - s. Recommendations
  - t. Evaluation of Other Factors
  - u. Audits

- v. Operating Procedures
- w. Emergency Procedures
- x. Licenses
- y. Security of Material

## **2 RSO Duties and Responsibilities**

**The RSO is responsible for the following:**

- 2.1 **Review and approve designation of work areas within the authorized use rooms/areas (e.g.: repair laboratory) and all service procedures for devices that contain radioactive material.**
- 2.2 Provide for the training of all radioactive materials users and initial and annual refresher training to ancillary personnel and maintain records of this training to include topics covered, the amount of time spent, the date(s), instructor(s), and student(s) names.
- 2.3 Maintain records of radioactive materials inventory, receipt and transfer of licensed material, radiation surveys, and audits, waste disposal, instrument calibration reports, and personnel dosimetry reports.
- 2.4 Provide supervision and assistance for the management of emergency, accident, spill, or exposure situations.
- 2.5 To insure that all devices not in storage, be leak tested within a six-month period. Devices in storage will be leak tested every ten years, or when removed from storage to be put into use.
- 2.6 Ensure that the terms and conditions of the radioactive materials license is met and that the license is amended for changes in the use of radioactive material, responsible individuals, or commitments provided to during licensing.
- 2.7 Ensure that licensed materials are properly secured against unauthorized removal at all times when not in use.
- 2.8 Review the content and implementation of the radiation safety program at intervals not exceeding 12 months.
- 2.9 Have the authority to terminate unsafe practices and activities jeopardizing the safety of workers, the public, or environment

## **3 Responsibilities and Requirements of Radioactive Material Users**

**Individual User Responsibilities. Each individual (Authorized Users or RAM Users) who works with radioactive materials must adhere to the following:**

- 3.1 Receive authorization from the RSO.
- 3.2 Keep exposures to ionizing radiation to levels as low as reasonably achievable (ALARA). The ALARA goals are 10% of the regulatory limits however actual doses are expected to be less than these values.

Table 3.1 ALARA maximum dose goal.

	mrem/y
Total Effective Dose Equivalent	500
The sum of the deep dose equivalent and the committed dose equivalent to any organ or tissue other than the lens of the eye	5000
Eye dose equivalent	1500
Skin and any extremity	5000

- 3.3 Participate in annual radiation safety training or as requested by the RSO.
- 3.4 Provide urine bioassay samples if/when requested.
- 3.5 Insure leak tests have been performed within six months prior to operation or service of sealed source/devices. Leak tests will be performed within ten years for devices that are in storage.
- 3.6 Use all appropriate protective measures such as:
- Wear protective clothing such as lab coats, glasses, and gloves, whenever contamination is possible. Wear disposable gloves at all times when working with radioactive materials.
  - Dispose of radioactive material only as authorized by the Radiation Safety Officer.
  - Secure all licensed materials when not under the constant surveillance and immediate control of authorized personnel.
  - Do not smoke, eat, drink, apply cosmetics, or store/use personal effects in radionuclide use/storage areas.

**We will not perform service or repair of the IMS cell. The statements in Item 3 regarding appropriate protective measures would be in the unusual case of a damaged device where damage to the IMS cell was possible and contamination was possible.**

- 3.8 Maintain good personal hygiene. When working with radioactive material:
- Keep fingernails short to avoid cutting protective gloves.
  - Wash hands after handling internal surfaces of sealed source devices to limit intake through the mouth, nose, or eyes.
- 3.9 Immediately report any loss or damage of radioactive material sealed source/devices to the RSO, and carry out recommended corrective action.

#### **4 General Policies and Procedures for Radioactive Materials Use**

- 4.1 Signs and Labels for Rooms or Areas.
- 4.1.1 A "CAUTION RADIOACTIVE MATERIALS" sign is posted on the doors to rooms/areas where devices containing radioactive material

are serviced (e.g.: where device cabinet/cases are opened for servicing or repair).

#### 4.2 Shielding of Sources.

4.2.1 **The radioactive source is Ni-63 with a maximum activity of 15 mCi, the radiation levels on the outside of the IMS cell are extremely low (only the very low level of bremsstrahlung x-ray radiation is detectable if using a low energy gamma scintillation detector).**

**We will not remove the Ni-63 source from the IMS cell or perform other service on the IMS Cell.**

#### 4.3 Surveys of radioactive materials Use Areas.

4.3.1 The immediate areas in which a device was serviced will be monitored for contamination if the leak test result for that device is above the leak test limit of 0.005 uCi.

#### 4.4 No IMS Cells will be opened.

4.4.1 The Ni-63 sources is contained in the IMS Cell. There is no service that can be performed on the cell.

4.4.2 Unusable cells will be returned to the factory (Smiths Detection Toronto) or to other licensed and authorized facility.

## **5 Operating Procedures**

### 5.1 Operating Procedures

5.1.1 Smiths Detection has an Statement of Work (SOW) with our NRC jurisdiction contracted site, which outlines our operating procedures.

5.1.2 All licensed materials are secured, and handled under the direct supervision of a Smiths Detection authorized user.

5.1.3 Licensed materials are secured by the authorized user during transportation to and from the NRC jurisdiction and our Ijamsville, MD site. The authorized user has full control over the licensed material. During transport, the unit is locked, and always attended. When transported in a vehicle, the unit is locked, and the vehicle is secured. The licensed material is under constant surveillance.

5.1.4 Radiation exposure is kept to ALARA. Licensed material is contained in its sealed device and the sealed device is housed and secured in a locked aluminum box.

5.1.5 When units are transported to and from NRC jurisdiction and our Ijamsville, MD office, the units serial numbers are recorded and noted for transfer.

5.1.6 Access to the units containing the devices which house the licensed material have strict access control:

5.1.6.1 Access to NRC jurisdiction sites are controlled by the Department of Defense (DOD).

5.1.6.2 Access to the locations at the NRC jurisdiction sites where the units are located are in locked, secured and controlled areas.

- 5.1.6.3 Access to the sealed licensed material is inside a locked aluminum housing.
- 5.1.7 Units are not transported either to or from NRC jurisdiction until they have been leak tested negative.
- 5.1.8 Units are controlled through unit serial numbers, and tracked electronically through work orders.
- 5.1.9 Radiation leak tests are performed prior to unit's removal from NRC jurisdictions.
- 5.1.10 Radiation leak tests are performed prior to unit's transportation to NRC jurisdictions.
- 5.1.11 Methods and occasions for locking and securing stored licensed materials are already in place at NRC jurisdiction sites.
- 5.1.12 Licensed materials are in a sealed device, which is locked in an aluminum box. Units are stored at NRC jurisdiction sites in secured areas.
- 5.2.13 Disposal of radioactive waste at temporary job sites will adhere to SOW agreed upon with the NRC jurisdiction site.

## **6 Emergency Procedures**

- 6.1 Smiths Detection has a Statement of Work (SOW) with our NRC jurisdiction contracted sites which outlines our emergency procedures with them.
- 6.2 If any defects and/or non-compliances are noticed during work in NRC jurisdiction sites, the RSO will be notified immediately, and the RSO will follow up with notification to the NRC as required by 10 CFR 21.21(a), and on site per SOW.
- 6.3 **In the event of an accident or emergency where the radioactive source in the sealed devices become ruptured, or contamination might exist:**
  - Secure ruptured radioactive device in sealed containers to prevent possible spread of contamination
  - Secure all contaminated items in sealed containers to prevent spread of contamination
  - Notify the Radiation Safety Officer (RSO) as soon as possible without permitting excessive spreading of contamination or exposure
  - Permit no further work until authorized by the RSO
  - All personnel involved, and the RSO will document all incidents and report as required.
- 6.4 **Fires Involving Radioactive Devices**
  - Sound the building alarm; this will evacuate the building



- Notify Security and the RSO; provide the exact location of the emergency and the type of emergency
- Ensure that lookouts are posted to direct emergency responders to the emergency and to inform them of the radiation hazards involved
- Attempt to put out the fire if a radiation hazard is not immediately present, if trained in the use of a fire extinguisher and if it can be done without endangering oneself
- Inform emergency responders of the exact nature of the hazards involved and remain in the area (if not injured), at least until the RSO arrives
- Assist the RSO with monitoring emergency responders and personnel after the fire, if requested
- Allow no one to enter the area until cleared by emergency responders and the RSO

## **7 Radiation Dosimetry for Personnel**

- 7.1 Radiation doses to users of radioactive materials under this license are not expected to exceed 10% of the allowable limits in from either external or internal sources.

A radiation measurement of the work areas that fall under NRC jurisdiction indicates a dose rate of less than 0.0003mSv/hr (0.03 mrem/hr). Service personnel are not expected to spend more than a total of 6 hours per week at the location of the measurement. Based on this measured dose rate, the annual dose is expected to be less than 0.094 mSv (9.4 mrem). Specifically,  $6\text{hr/wk} \times .03\text{ mrem/hr} \times 52\text{ wk/yr} = 9.36\text{ mrem}$ . Based on the above, if any service personnel work in the areas less than 100 hours per week, no dosimetry is required.

- 7.2 External Radiation Monitoring.

7.2.1 Due to the low energy of the beta emission, Ni-63 is not an external radiation hazard. External monitoring is not effective for Ni-63 and will not be required.

- 7.3 Internal Radiation Monitoring – Bioassay.

7.3.1 Emergency bioassays will be performed in case of a spill involving release of more than 1 mCi of licensed material or for other possible intake in excess of 10% of the allowable limits.

## **8 Detector Cell or Device Sealed Source/Device Leak Test Procedure**

- 8.1 Leak Testing Sealed Sources/Devices.

8.1.1 Perform the leak test following manufacturer's recommended procedure.

For Devices containing IMS cells this is usually accomplished using a swab to wipe the outside surface of the device or IMS cell (with particular attention to seams in the instrument case and any sample inlet), placing the swab in a seal sealing plastic bag, marking the bag with the device information.

Leak tests will be performed at the Ijamsville, MD location under MD License Number: MD-21-058-01

8.1.2 Record the leak test in the log with the following information:

- Date
- Mfr, Model and Device Serial Number and Activity
- Name of Person collecting the Leak Test
- Results

8.1.3 Collect the leak test sample for testing using the following procedure:

- 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.
- Analyze the leak test using liquid scintillation counting technique.
- 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:  
$$\frac{[(\text{cpm std}) - (\text{cpm bkg})]/\text{std Bq}}{\text{efficiency}} = \text{cpm/Bq}$$
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:  $\frac{[(\text{cpm from wipe sample}) - (\text{cpm from bkg})]/\text{efficiency in cpm/Bq}}{\text{Bq}} = \text{Bq on wipe sample}$

- Maintain the list of sources, data, and calculations, date performed and retain records for 5 years.
- Prepare a certificate of the leak test with signature and date as necessary
- If the wipe test activity is 185 Bq (0.005 microcurie) or greater, notify the Radiation Safety Officer so that the source can be withdrawn from use and disposed of properly.

## **9 Damaged Devices**

### 9.6 Handling a damaged device.

- 9.6.1 Damaged devices should only be handled with written permission from the RSO.
- 9.6.2 Appropriate protective clothing, such as lab coats, glasses and gloves, will be worn when handling a damaged device.
- 9.6.3 Conduct a leak test of the device and submit for “emergency” analysis.
- 9.6.4 Place the damaged device in a clear 4-mil plastic bag. Close bag with plastic tie or nylon reinforced tape. The following information will be included on a tag (or equivalent) attached to the item.

- |  |
|--|
| <ul style="list-style-type: none"><li>• User's Name</li><li>• Date</li><li>• Activity (mCi)</li><li>• Radionuclide (Ni-63)</li><li>• Device (Mfr and Model)</li><li>• “Caution Radioactive Material” label</li></ul> |
|--|

## **10 Disposal of Damaged Devices**

10.1 Damaged devices (this is not normal for the proposed use) that requires disposal, will be transferred only to authorized recipients.

### 10.1.1 Authorized Recipients

- Licensed Radioactive Waste Broker (e.g.: RSO, Inc. Maryland License Number MD 33-021-02)
- Manufacturer/Distributor (e.g.: Smiths Detection-Toronto or Smiths Detection-Edgewood)

10.1.2 A copy of the license of the recipient will be obtained prior to transfer and records will be maintained of disposal of devices.

## **11 Procedures for Receipt, Inventory and Shipment**

### 11.1 Receipt of radioactive materials Packages.

#### **Instructions to Shipping and Receiving Personnel**

11.1.1 Packages will be monitored and wipe tested.

11.1.2 If the package appears to be damaged, immediately contact the RSO. Ask the carrier to remain at the facility until it can be determined that neither the carrier nor the vehicle is contaminated.

### 11.3 Procedure for Opening Packages Containing Radioactive Material.

11.3.1 Authorized Users and the RSO shall implement procedures for opening each package, as follows:

11.3.2 Visually inspect the package for any sign of damage (e.g. crushed or puncture). If damage is noted, stop and notify the RSO.

11.3.3 Check DOT White I, Yellow II, or Yellow III label and packing slips for activity of contents, to insure that the shipment does not exceed possession limits. Detectors containing Ni-63 should be shipped as Excepted Package Instrument or Article UN2911 (Note: A DOT "Diamond" shaped label is NOT required).

11.3.4 Monitor the external surfaces of a labeled package according to the requirements in the following table:

Package	Contents	Survey Type	Survey Time
Labeled: White I, Yellow II, Yellow III	Not Gas or Special Form Less than Type A Quantity	Contamination	As soon as practicable but not less than 3 hours after receipt of package
Not Labeled	Licensed Material	None	None
Damaged	Licensed Material	Contamination and Radiation Level	As soon as practicable but not less than 3 hours after receipt of package

11.3.5 Open the outer package (following supplier's directions if provided) and remove packing slip. Notify the RSO of any problems or discrepancies.

11.3.6 Maintain records of receipt.

11.3.7 Notify the final carrier and by telephone or facsimile the when removable radioactive surface contamination or external radiation levels exceed the limits of 49 CFR.

### 11.4 Inventory Procedures.

11.4.1 Complete the top section of a Device Inventory Record.

11.4.2 When the device is ready for return to the customer, the Inventory Record will be updated. When the device is shipped the record will be forwarded to the RSO for file and the running inventory updated.

11.4.3 A physical inventory of all sealed source/devices will be performed at 6-month intervals. Records of this inventory will be maintained by the Radiation Safety Officer.

11.5 Procedure for Shipping Devices containing licensed material.

11.3.1 All shipments shall be performed by individual trained in accordance with DOT requirements for Haz Mat Shipper Training. See 49 CFR Part 172 Subpart H.

11.3.2 Detectors containing Ni-63 should be shipped as Excepted Package Instrument or Article (Note: A DOT "Diamond" shaped label is NOT required). The Hazardous Material identification number is placed on the outside of the shipping package. For Smiths Detection devices this ID number is UN 2911.

11.3.3 Visually inspect the package for any sign of damage (e.g. crushed or puncture). If damage is noted, stop and notify the RSO.

## **12 Security of Radioactive Material**

12.1 Radioactive Material Sealed Source/Devices will be secured from unauthorized removal or access when in storage or in use.

12.2 The access to the posted areas will have locked doors or will have another suitable means to prevent removal of the licensed material by unauthorized personnel.

12.3 Visitors will be escorted when in posted areas and personnel have the right to challenge unfamiliar persons as to their identity and reasons for being in posted areas or laboratories.

## **13 Radiation Safety Training**

13.1 Radiation Awareness Training.

13.1.1 All personnel (including housekeeping, maintenance and security) prior to assuming duties or frequenting areas where licensed material are used or stored will be given radiation awareness training. This training will include instructions on concerning the licensed use of radioactive material, personnel authorized to handle and use licensed material, use and storage locations, warning signs, warning labels, security of licensed material, and emergency procedures. The Radiation Safety Officer will present the training.

13.1.2 This training will be updated if there is a significant change in duties, regulations, the radiation safety program or its implementation or the terms of the license.

13.2 Radiation Safety Training for Sealed Source Device Service Personnel

- 13.2.1 Each person that performs service on devices containing licensed material must have received training in Radiation Safety. The training can be any combination of review of written materials, 1-on-1 training, viewing videotapes or classroom instruction. The following topics will be addressed:

**Section I (General Awareness Topics)**

1. Introduction.  
Reason for training
2. Natural Background Radiation  
Basic Radiation Physics  
Biological Effects and Risks
3. Regulations, licenses, and Notice to Employees.  
Organization for the control of radiation (Radiation Safety Officer and Program)  
Authorized Users  
Authorized Place of Use
4. Signs, labels for areas and storage units.  
Label requirements for devices.

**Section II**

5. Servicing Procedures and Radiation Safety  
Inventory and Control of Licensed Material  
Conducting Leak Tests of Sealed Sources/Devices  
Security of Licensed Material  
Personnel Radiation Dosimetry
6. Shipping Radioactive Material  
Excepted Package requirements
7. Emergency Procedures.  
Response to Damaged Devices and/or  
Suspected leakage of Ni-63

- 13.2.2 The RSO will document the classroom and the 1-on-1 training.
- 13.2.3 The radiation safety training will be presented by the Radiation Safety Officer.
- 13.2.4 Re-fresher training (**annually**). The RSO will provide a refresher radiation safety training on the above listed topics. The training can be any combination of reading, 1-on-1 training, viewing video tapes

or class room instruction. Lectures and written materials/examinations which are read and completed by radiation workers may also be used to complete the annual refresher training.

13.2.5 Additionally, our training includes:

- Development and implementation of an ALARA program
- Description of equipment and facilities adequate to protect personnel, the public and the environment.
- Confirmation that licensed activities are conducted only by individuals qualified by training and experience as determined by the RSO
- Development and maintenance of written operating and emergency procedures.
- Implementation of an audit program to ensure that, at least annually, the radiation safety program is reviewed.
- Description of organization structure and individuals responsible for ensuring day-to-day oversight of the radiation safety program.
- Establishment and management of a radiation safety and decommissioning records system.
- Methods or procedures for preventing personnel contamination. Radiation safety procedures and the authorized users responsibilities unique to each type of service operation requested in the application.
- Radiation safety procedures.
- Equipment, techniques, and corresponding radiation safety procedures associated with providing services involving either sealed sources or unsealed materials.

13.3 Qualifications and Training of the Radiation Safety Officer

13.3.1 The RSO will have a minimum of 3 months experience working with radioactive materials, and will receive specific training from the incumbent RSO OR attended a training class for Radiation Safety Officers.

13.3.2 Radiation Safety Officer will have completed the following formal training in the areas as required for users and the following:

- Review the license application, and license
- Review of specific Radiation Safety Program requirements (specifically Duties and Responsibilities of the RSO)
- Review past program reviews or audits and regulatory inspection results

## **14 Summary of the Radiation Safety Program**

- 1. Annual Audit (review) of the Radiation Safety Program.**
- 2. Annual Radiation Safety Refresher Training.**
- 3. Maintain radioactive material inventory and records.**
- 4. Insure all devices have been leak tested within 6-months prior to their use or being serviced and maintain records of the leak tests. Leak tests to be performed within ten years for stored devices.**
- 5. Leak test devices prior to transfer.**
- 6. Conduct and maintain records of Quarterly Use and Storage Inspections and Semi-Annual Physical Inventory.**
- 7. Post "Radioactive Use" Areas/Rooms with appropriate "Caution Radioactive Material" signs.**
- 8. Maintain records for decommissioning of license.**



**5. Radioactive Materials**

<b>Isotope</b>	<b>Chemical or Physical Form</b>	<b>Maximum amount</b>
Ni-63	Sealed Sources, Amersham Model NBC, and NRD Model N1001	15 mCi per source and 7.5 Ci total

6. Repair and servicing of the devices in NR-0163-D-801-G; IONSCAN Models 100, 200, 250, 350, 400, 500DT, 500HDT, LS, Sabre 2000, Sabre 4000, Sabre Centurion, Sabre Centurion II, Sabre EXV, Sentinel II, and MMTD. Repair and servicing of these devices do not involve the IMS assemblies, but include instruction and training of individuals in the use of the devices; and for demonstrations at customer's facilities.

Repair and service of the above devices includes: transportation, routine maintenance, non-routine maintenance, packaging, removal and/or replacement of the whole device from site location, and leak testing. Any additional service or repair would be performed at our Ijamsville, MD location under our Ijamsville, MD license. MD License # MD-21-058-01.

Licensed material shall be used at temporary job sites of the licensee anywhere in the United States where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material, including areas of exclusive Federal jurisdiction within Agreement States. If the jurisdiction status of a Federal facility within an Agreement State is unknown, Smiths Detection Ijamsville will contact the Federal agency controlling the job site in question to determine whether the proposed job site is an area of exclusive Federal jurisdiction. Authorization for use of radioactive materials at job sites in Agreement States, not under exclusive Federal jurisdiction, shall be obtained from the appropriate state regulatory agency.

**7. Individuals Responsible for the Radiation Safety Program and Their Training and Experience**

The radiation safety officer for this license is Peter Wallace. Mr. Wallace is also the radiation officer for a Maryland issued radioactive materials license (MD-21-058-01).

**Peter Wallace, Radiation Safety Officer**

**2010 - Present**

Peter Wallace completed the Radiation Safety Officer Training and Advanced RSO Training from the Dade Moeller Radiation Safety Academy in 2009-2012; He has completed multiple Technical X-Ray and RadSeeker (Radiation Detection) training from Smiths Detection. Peter Wallace has HAZMAT DOT training, with certificate, from the Dade Moeller Radiation Safety Academy Division in March of 2010, and 49CFR/IATA/IMDG Radioactive Materials Training, with certificate, from DGI Training Center in October 2011. Peter Wallace has served as Radiation Safety Officer for Smiths Detection from June 2010 to present.

**2005- Present**

Peter Wallace has been a Smiths Detection trained service technician for the Centurion I and Centurion II systems since May of 2005.

As of November 2008, Peter Wallace has been the Product Specialist for the Centurion I and Centurion II line of IMS detection systems for Smiths Detection worldwide. His duties involve not only troubleshooting the systems, but in technical and operator training in the operation and repair of the systems. As of August 2011, Peter Wallace has been the Product Specialist for the RadSeeker, NaI and LaBr radiation detection systems for Smiths Detection worldwide. His duties involve not only troubleshooting, but in technical and operator training in the operation and repair of this system.

**1994** B.A. from the University of Pittsburgh

**Memberships and Organizations**

2011-Present Plenary Member of the Health Physics Society

**Additional Authorized Users:**

**Scott Lewis** - Regional Service Manager

Ni-63 sealed source/device field service technician for over five years. Scott has attended annual Radiation Safety Training; RAM DOT training given by the RSO, and trace detection technical courses given by Smiths Detection.

**Howard Dolloff** – Sr. Field Service Technician and Federal Account Manager

Ni-63 sealed source/device field service technician for over fifteen years. Howard has attended annual Radiation Safety Training; RAM DOT training given by the RSO, and trace detection technical courses given by Smiths Detection.

**Brian Nelson** – Service Account Manager

Ni-63 sealed source/device field service technician and technical instructor for over five years with Smiths Detection. Brian has attended annual Radiation Safety Training; RAM DOT training given by the RSO, and trace detection technical courses given by Smiths Detection.

## **8. Training for Individuals**

Training is provided to employees that use radioactive sources. Users' will complete a 4-hour course in radiation safety to include the topics listed in the attached Radiation Safety Program.

## **9. Facilities and Equipment**

At no time does Smiths Detection Ijamsville handle licensed material. Sealed detector cells containing licensed material shall not be opened or removed from their holders. Therefore, no special facilities or equipment are required to ensure compliance with our license.

## **10. Radiation Safety Program**

Please see the attached Radiation Safety Program.

## **11. Waste Management**

Smith Detection will dispose of any unwanted radioactive sources by one of the following means:

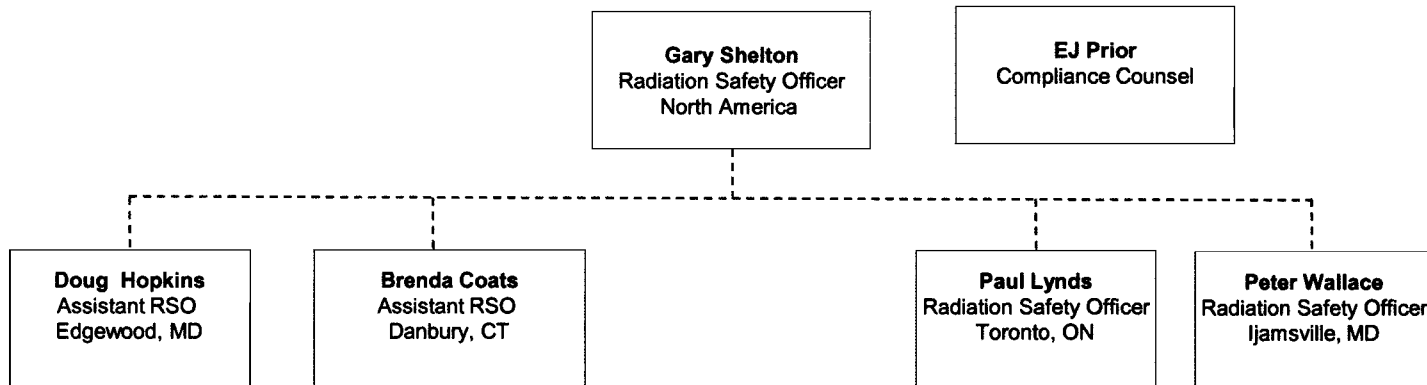
- Return to the manufacturer.
- Transfer for disposal at a licensed disposal site using the services of a licensed radioactive waste broker or equivalent.
- Transfer sources to other licensed/authorized persons.

## Ijamsville, MD – Radiation Safety and DOT Training

Name	Date
Howard Dolloff	August 1, 2011
Scott Lewis	August 1, 2011
Tamara Akers	September 26, 2011

Online Basic Radiation Safety Training – Training Department

# Smiths Detection Radiation Safety Team (North America)



## Organisation

- Matrix reporting to Legal and Compliance
- Cities represent site coverage
- Monthly team call led by Gary/EJ

## Regulatory Points of Contact

- Federal and International: Gary Shelton
- State and Local: Peter Wallace