Maryland Department of the Environment

APPLICATION FOR RADIOACTIVE MATERIAL LICENSE AUTHORIZING THE USE OF SEALED SOURCES IN XRF DEVICES

Maryland Department of Environment (MDE) 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 COMAR26.12.01.01 "Regulations for the Control of Ionizing Radiation." for additional information. Use supplementary sheets if necessary. Retain a copy and submit the original of the entire application to: MDE, Radiological Health Program, 1800 Washington Boulevard, Suite 750, Baltimore, Maryland 21230.

APPLICATION TYPE

Item 1 Type of Application (Check one box)

☐ A. New License ☐ B. Renewal License Number MD -

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) ( ) -

Federal Tax ID Number:

Privacy Act Notice: This Notice is provided pursuant to the Federal Privacy Act of 1974, 5 U.S.C. § 552a. Disclosure of your Social Security or Federal Tax Identification on this form is mandatory pursuant to the provisions of § 1-203 (2003) of Environment Article, Annotated Code of Maryland, which requires MDE to verify that an applicant for a permit or license has paid all undisputed taxes and unemployment insurance. Social Security and Federal Tax Identification Nos. will not be used for any purposes other than those described in this Notice.

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)**
☐ Stored		( ) -

☐ And used at temporary jobsites for testing for lead paint in situ

Are portable XRFs stored at temporary jobsites?: ☐ Yes ☐ No

If yes, check the following boxes:

☐ We will store the device at the temporary job site in a locked room, trailer or other secure location utilizing two independent barriers 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) ( ) -

☐ Provide manufacturers' certificates of training for XRF use and Hazmat demonstrating the RSO has successfully completed the required training/ courses described in the Criteria section titled "Individual(s) Responsible for Radiation Safety Program and Their Training and Experience-Radiation Safety Officer" in COMAR26.12.01.01 "Regulations for the Control of Ionizing Radiation."

Or

☐ Alternative information demonstrating that the proposed RSO is qualified by training and experience is attached.

☐ Commit to the RSO having responsibility to stop unsafe conditions

☐ Attach organization chart showing RSO reporting chain with management

☐ Sign and attached Attachment A Duties and Responsibilities of the Radiation Safety Officer for XRF License

AUTHORIZED USERS

Item 6 Training for individuals working in or frequenting restricted areas (Check one box)

☐ Provide manufacturers certificates of training for XRF use and Hazmat for authorized users. Commit to provide the same training to new users before use and to conduct annual user training and Hazmat training every three years to all users

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: Certificates and other documentation and training shall be available for inspection. Annual refresher training and Hazmat training apply to all 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. With the diagram submit written description on how you maintain two independent physical barrier (locks, doors, safes etc) while XRF is in storage (Section D.803 COMAR 26.12.01.01)

RADIATION SAFETY PROGRAM

Item 9.1 Audit Program (Check box)

☐ Attach a copy of you annual audit program that meets the scope of Appendix E Portable Gauge Audit Checklist in NUREG 1556 Vol 1 . Commit to conduct the audit annually.

Item 9.2 Termination Of Activities (Check box)

☐ We will notify RHP/MDE, in writing, within 30 days of the decision to permanently cease radioactive material use. (Section D.1301 COMAR 26.12.01.01)

Item 9.3 Instruments

N/A for XRFs

Item 9.4 Material Receipt And Accountability (Check 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.

Item 9.5 Occupational Dosimetry N/A for XRFs

Item 9.6 Public Dose No response is required in this license application

Item 9.7 Operating And Emergency Procedures (Check box)

☐ We will implement and maintain the operating and emergency procedures for XRF Devices and provide copies of these procedures to all gauge or XRF users and at each job site. (**Sign and attach Attachments B and C**)

Item 9.8 Leak Tests (Check one box)

☐ Leak tests will be performed, at intervals not to exceed 6 months, in accordance with Section D.401 of COMAR26.12.01.01 "Regulations for the Control of Ionizing Radiation." by an organization authorized by MDE, 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 MDE, 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 MDE, NRC, or another Agreement State)

Organization Name_____

License Number _____ Issuing Agency _____

Or

☐ We will perform leak testing and sample analysis and will with a procedure that follow the model procedures in Appendix R-1 of NUREG 1556, Volume 7. (**attach procedure and qualifications of person(s) doing the tests)**

Item 9.9 Maintenance (Check one box for routine cleaning and lubrication and one box for non-routine maintenance)
Routine cleaning and lubrication:

☐ We will implement and maintain procedures for routine maintenance of our XRF(s) according to each manufacturer's recommendations and instructions.

Or

☐ Alternative procedures are attached.

AND

Non-routine maintenance:

☐ We will send the XRF(s) to the manufacturer or other person authorized by MDE, the NRC or another Agreement State to perform non-routine maintenance or repair operations that require the removal of the source from the XRF(s).

Item 9.10 Transportation (Check box)

☐ Provide a description on how XRF will be transported that provides blocking and bracing of the gauge and how it is secured by two independent physical barrier (locked case is portable and must be secure to the vehicle). Commit to following the transportation regulations in Section T of COMAR 26.10.01.01.

Item 9.11 Waste Management - Gauge or XRF Disposal And Transfer (Check box)

☐ We will transfer the XRF to the manufacturer for disposal or transfer the device to a specific licensee, authorized to receive radioactive material.

SPECIFIC LICENSE FEE – Invoice will be sent after receipt and acceptance of application. Fee must be paid before license review can be completed.

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

Item 11

The applicant understands that all statements and representations made in this application are binding upon the applicant. The application and any official executing this certificate on behalf the applicant named in item 2, certify that this application is prepared in conformity with Maryland regulations for control of ionizing radiation and that all information contained herein is true and correct to the best of our knowledge and belief.

SIGNATURE - Applicant Or Authorized Individual	Date signed

Print Name and Title of above signatory

ATTACHMENT A

DUTIES AND RESPONSIBILITIES OF THE RADIATION SAFETY OFFICER FOR XRF LICENSE

1. Licensed activities that the RSO considers unsafe are stopped.

2. Possession, use, storage and maintenance of sources and gauges are consistent with the limitations in the in the license, the Sealed Source and Device registration certificate(s), and the manufacturer's recommendations and instructions.

3. Individuals who use the XRF(s) are properly trained.

4. Radiation exposures are kept as low as reasonable achievable (ALARA).

5. XRFs are properly secured.

6. Proper authorities are notified in the case of accident, damage to, or malfunctions of XRF(s), fire, loss, or theft.

7. Unusual occurrences involving the XRF (e.g., malfunctions, accident, damage, theft) are investigated, causes(s) are determined, and appropriate corrective action(s) are identified, and corrective action taken.

8. Audits are performed at least annually and documented, and corrective actions are taken.

9. When the licensee identifies violation(s) of regulations or license conditions or program weaknesses, corrective action(s) are developed, implemented, and documented.

10. Licensed material is transported in accordance with all applicable NRC and U.S. Department of Transportation requirements.

11. Licensed material is disposed of properly.

12. All required records are maintained.

13. An up-to-date license is maintained, and amendment and renewal requests are submitted in a timely manner.

14. Documents are posted as required by 10 CFR 19.11, "Posting of notices to workers," (10 CFR Part 19, license documents, operating procedures, NRC Form 3, "Notice to Employees,"), and 10 CFR 21.6, "Posting Requirements," (10 CFR Part 21 Section 206 of the Energy Reorganization Act of 1974, procedures adopted under Part 21), or a noted is posted indicating where these documents can be examined.

APPROVED BY: _____ DATE _____
(Applicant)

ATTACHMENT B

RADIATION SAFETY PROGRAM
FOR XRF LICENSE

The following radiation protection program will be followed at all times. **A copy of these procedures shall be maintained in the licensee's radioactive materials license file, and another copy in the shipping case of each XRF gauge at all times.**

1. Only certified operators shall use, or supervise the use of, XRF gauges.

2. The licensee shall not open a source containing radioactive material.

3. No one shall be permitted to touch or directly handle the unshielded source.

4. The operator shall never unnecessarily be exposed to the unshielded source.

5. The XRF gauge source shall be locked in the closed, safe, off, or stored position when not in use and during routine maintenance.

. Security of the XRF gauge shall be maintained at all times. The gauge shall be returned to the carrying case when not in use. XRF gauges shall never be left unattended, except when in storage in the licensed storage facility in the designated locked storage area or in a locked vehicle out of sight so as to minimize the attractive nuisance value.

6. Only licensed operators shall have or carry keys to the XRF gauges or to their locked storage areas. The Radiation Safety Officer shall maintain control of all keys.

7. If the operator detects any malfunction in the shutter or other part of the XRF gauge, the operator shall immediately notify the Radiation Safety Officer.

8. The licensed operators shall keep the Radiation Safety Officer informed of the location of the radioactive sources at all times. A utilization log shall be maintained at the secondary and/or primary storage location (not carried with the gauge into the field) including, but not limited to, the following information:

   a. Device manufacturer
   b. Model number,
   c. Serial number,
   d. User,
   e. Date(s) of use, and
   f. Location(s) of use.

9. The company shall maintain on file indefinitely the training certificates.

10. The XRF gauges shall be securely restrained with two methods, independent of each other, within the transportation vehicle and away from the passenger compartment to prevent theft or loss in an accident and to keep personnel exposure to a minimum.

11. The Radiation Safety Officer shall maintain a current copy of the following along with the XRF gauge license:
    Code of Maryland Regulations (COMAR) 26.12.01.01 "Regulations for the Control of Ionizing Radiation" An updated copy of Attachment 'B' "Emergency Procedure" shall also be carried with each nuclear gauge.

(continue)

ATTACHMENT B (continued)
RADIATION SAFETY PROGRAM
FOR PORTABLE GAUGE LICENSE

12. The storage cabinet or door to the storage area shall be posted with a CAUTION RADIOACTIVE MATERIALS sign. Properly completed Form MDE-279, "Notice to Employees," shall be posed in a conspicuous place wherever individuals work in or frequent any portion of a restricted area. Licensed operators shall be responsible for posting the above at all field storage locations.

13. Leak testing of the sealed sources is required at six month intervals, or at the manufacturer's specified interval, and shall be performed in the manner designed in the application form. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Department.

14. Transportation activities shall be carried out in accordance with the requirements of Section T of COMAR 26.12.01.01.

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15. Radiation labels or placards (if any) shall be removed from vehicles when not actually transporting the XRF gauge(s) to avoid confusion should an accident occur to the vehicle when it does not contain the gauge(s).

16. Licensee must comply with Department of Transportation requirements, including <u>but not limited to</u> the following:

- When transporting portable gauge, carry at all times:
  - Shipping Paper
  - Attachment C Emergency Procedures for Portable Gauge License

- Shipper's Emergency contact information per 49 CFR 172.604.
- Gauge packaging must meet TYPE A package specifications.
- Storage must comply with 49 CFR 177.842.
- Hazmat employees must be trained per 49 CFR Subpart H (49 CFR 172.700 through 49 CFR 172.704), and 49 CFR 177.817 shipping papers.
- Upon purchase or receipt of gauges, licensee must maintain receipt records from the manufacturer which include safety analysis that the special form radioactive materials meets 49 CFR 173.469. The special form certificate for each source, must match "Shipper's Declaration for Dangerous Goods" shipping paper authorization number.

APPROVED BY: _____ DATE: _____
(Applicant)

Attachment C EMERGENCY PROCEDURES FOR XRF LICENSE

If an emergency occurs, such as loss, theft, fire, explosion, or vehicle accident in which the XRF may be damaged or lost, the operator shall follow these procedures:

1. **SECURE THE AREA AROUND THE ACCIDENT.** KEEP UNAUTHORIZED PERSONS AWAY. ALERT PEOPLE IN VICINITY OF THE PRESENCE OF RADIOACTIVITY AND A POSSIBLE HAZARD.

2. DO NOT LEAVE THE SITE. Send a helper or on-looker to notify the following:

   a. Radiation Safety Officer, whose phone numbers are:

      Work _____ Home _____

   b. Local Police _____

   c. Local Fire Department (where applicable) _____

3. The Radiation Safety Officer in turn must immediately notify Maryland Radiation Health Programs day time Monday through Friday at 410 537 3300 or 1 866 633 4686 Nights, Weekends, & Holidays as indicated. Identify the call as a **RADIATION EMERGENCY** and give the following information:

   a. Your name

   b. Agency or firm

   c. Location of incident

   d. The telephone number where you can be reached

Upon contact with a State Radiation Emergency Response Officer, report the following information.

   a. What happened

   b. Date and time emergency began

   c. Are there any injured people

   d. Actions taken

   e. Emergency agencies present on scene or notified

   f. Present status

4. The operator should inform emergency workers of the radiation hazard possibly existing, and should help them keep the area secure and explain to the emergency personnel of the radioactive device, and the extent of the possible hazard. **In no case should the operator leave the site** until qualified experts arrive, unless, of course, the operator is seriously injured or incapacitated, and must be removed from the site by emergency personnel for necessary medical treatment.

Optional Radiation Safety Officer / emergency contact at gauge manufacturer / distributor: _____

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APPROVED BY: _____ DATE: _____
(Applicant)