

# **LICENSING GUIDE**

**INSTRUCTIONS FOR PREPARING AN APPLICATION  
FOR A RADIOACTIVE MATERIALS LICENSE AUTHORIZING  
THE  
USE OF SEALED RADIOACTIVE SOURCES  
IN  
INDUSTRIAL RADIOGRAPHY DEVICES**

**December 31, 2005**

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## **INTRODUCTION**

### **A. PURPOSE OF GUIDE**

This Licensing Guide provides instructions to an applicant for preparing an application for a specific license authorizing the possession and use of radioactive material in the form of sealed sources contained in radiographic exposure devices (cameras) or other portable devices (for example, source changers) for industrial radiography. It also describes the Department of Health and Human Service's criteria for evaluating an industrial radiography license application. The phrases "industrial radiography device", "radiographic device" or "exposure device", or "camera" may be used interchangeably in this Licensing Guide. The Guide addresses a variety of the many radiation safety issues associated with the possession and use of radiographic exposure devices.

The information submitted in the application must be sufficient to demonstrate that proposed equipment, facilities, personnel, and procedures are adequate to protect the public health and safety of the citizens of Arkansas. 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 will be established and implemented. Such requests for additional information will delay completion of the application's review and may be avoided by a thorough study of the regulations and these instructions prior to submitting the application.

<b>NOTE:</b>	<b>The Licensing Guide for Industrial Radiography Devices is not a regulation. It serves only as guidance to assist the Applicant in completing an Application for Radioactive Material License.</b>
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### **B. AGREEMENT STATE**

Arkansas is an Agreement State with the U.S. Nuclear Regulatory Commission (NRC). This Agreement authorizes the State of Arkansas to assume regulatory authority over most activities involving radioactive material within the state. The exceptions are nuclear power plants and federally controlled facilities, which remain under NRC jurisdiction. The Arkansas Department of Health and Human Services (Department), Radiation Control Section, Radioactive Materials Program, regulates the possession and use of radioactive material within Arkansas. Under authority of the Arkansas State Board of Health's, Rules and Regulations for Control of Sources of Ionizing Radiation, the Department issues licenses to users of radioactive material and performs inspections to ensure compliance with the regulations.

### C. MANAGEMENT RESPONSIBILITY

The Department recognizes that effective implementation and management of the radiation safety program is mandatory for achieving a safe program that complies with the Rules and Regulations for Control of Sources of Ionizing Radiation.

To help insure effective management involvement in all aspects of the radiation safety program, the Department requires that a management representative sign the license application acknowledging management's overall commitment to and responsibility for the following:

1. Radiation safety, security, and control of radioactive material.
2. Completeness and accuracy of the radiation safety program records and all information provided to the Department.
3. Knowledge about the contents of the application and license.
4. Committing adequate resources (including personnel, time, facilities and equipment) to the radiation safety program to help insure the general public and workers are protected against radiation hazards.
5. Compliance with the Rules and Regulations for Control of Sources of Ionizing Radiation
6. Selecting and assigning a qualified Radiation Safety Officer (RSO).

### D. APPLICABLE REGULATIONS

The following portions of the Rules and Regulations for Control of Sources of Ionizing Radiation are applicable to the use of radioactive material in the form of sealed sources in portable devices and should be used in conjunction with these instructions:

- ◆ Section 2 "Licensing of Radioactive Materials"
- ◆ Section 3 "Standards for Protection Against Radiation"
- ◆ Section 4 "Transportation of Radioactive Materials"

The Department periodically amends the regulations. Notification of proposed changes will be provided as they occur in accordance with the Administrative Procedures Act of the State of Arkansas.

Industrial Radiography Device licensees are also subject to U.S. Department of Transportation (DOT) regulations, which are found in Title 49, Code of Federal Regulations (49 CFR), Parts 170 through 189. Copies of 49 CFR can be ordered by writing the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburg, PA 15250-1954. The web site for U.S. Department of Transportation is [www.dot.gov](http://www.dot.gov).

## **E. PURPOSE OF APPENDICES AND EXHIBITS**

The regulations require applicants to acquire equipment, train workers, and implement procedures that will ensure compliance. In addition to the “Application for Radioactive Material License”, a set of appendices, exhibits and supplements are enclosed to assist the Applicant in the development of a portable gauge radiation protection program. Appendices contain information that must be submitted for review (for example, Appendix D, Leak Test of Sealed Radioactive Sources) and model procedures that may be used to meet regulatory requirements. Equivalent procedures are also acceptable but must be submitted for approval by the Department. The Applicant must decide which Procedure to use, either the Appendix or Equivalent, and must commit to that decision. Exhibits are examples of the types of documents or forms that must be submitted as part of the application, and in several cases, are model forms that may be used by applicants to satisfy regulatory requirements.

Carefully read the applicable regulations, model procedures and forms before deciding if the models are appropriate for the activities being requested. Model procedures and forms may be adopted by submitting them as part of the license application, or may be used as guides for developing equivalent procedures. Item VII, “List of Attachments” (Page 23 of the Licensing Guide) provides a table to indicate which model or equivalent procedures have been attached to the submitted application

**NOTE: Some of the information contained in this Licensing Guide was taken from the following documents:**

- **U.S. Nuclear Regulatory Commission (NRC) document, NUREG-1556, Volume 2, “Consolidated Guidance About Materials Licenses, Program-Specific Guidance About Industrial Radiography Licenses”,**
- **State of Florida, Department of Health, Bureau of Radiation Control, Regulatory Guide 1.40, “Instructions for Preparing Applications for Radioactive Material Licenses Authorizing Industrial Radiography” (Draft),**
- **State of Texas; Department of Health, Bureau of Radiation Control, Regulatory Guide 2.1, “Guide for Radioactive Material-Industrial Radiography”**

**The information is used with permission of the NRC and the States of Florida and Texas.**

## **FILING AN APPLICATION**

### **A. GENERAL**

An application for a specific license to use radioactive material in the form of sealed sources in industrial radiography devices should be submitted on the "Application For Radioactive Material License". Space provided on the application form is limited, so separate 8.5 x 11 inch sheets of paper should be attached. Each additional sheet submitted with the application should be identified and keyed to the item number on the Application form to which it refers.

The application must be completed in triplicate. Send two (2) copies of the completed application to:

Arkansas Department of Health and Human Services  
P.O. Box 1437, Slot H-30  
Little Rock, Arkansas 72203-1437

Retain at least one copy of the submitted application form, with all attachments. When issued, the license will require that radioactive material be possessed and used in accordance with statements, representations and procedures provided in the application and the supporting documentation. Regulatory requirements specified in the Rules and Regulations for Control of Sources of Ionizing Radiation shall govern unless the statements, representations and procedures set forth in the license application and correspondence are more restrictive than the regulations.

All license applications will be available for review by the general public in the Department. If it is necessary to submit proprietary information, follow the procedure in the Rules and Regulations for Control of Sources of Ionizing Radiation, Paragraph RH-4040, "Public Record-Exceptions". Failure to follow this procedure could result in disclosure of the proprietary information to the public or substantial delays in processing the application. Employee personal information, (for example, home address, home telephone number, social security number, date of birth, radiation dose information), should not be submitted unless specifically requested by the Department.

## **B. LICENSE FEES**

The following fees are assessed:

<u>License Application fee</u>	A non-refundable administrative fee for processing a new license application is \$1,000.  <u>Review of the application will not begin until the proper fee is received by the Department.</u>
<u>License Amendment Fee</u>	A non-refundable administrative fee for processing an application to amend an existing license. The amount of license amendment fee is \$50.00 per amendment.  <u>Review of the amendment request will not begin until the proper fee is received by the Department.</u>
<u>Annual fee</u>	An annual fee covers the Department costs for administering the radioactive materials licensing program. The annual fee for an Industrial Radiography license is \$1000.  The Annual Fees are due January 1 of each year.

## **CONTENTS OF AN APPLICATION**

### **1. NAME AND MAILING ADDRESS**

List the legal name of the applicant's corporation or company, including the designation "doing business as", or other legal entity with direct control and responsibility for the use of the radioactive material and to whom the license will be issued. A division or department within the corporate organization may not be the 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.

Provide the telephone number of the corporation or company.

<b>NOTE:</b> <b>The Department must receive prior notification in the event of change of ownership or control or any bankruptcy proceedings.</b>
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**2. STREET ADDRESS AT WHICH RADIOACTIVE MATERIAL WILL BE USED AND/OR STORED (IF DIFFERENT FROM ITEM 1.)**

List the physical street address, city, state, and Zip Code for each permanent facility or place where radioactive material will be used and/or stored, if other than described in Item 1. Do not list an address as a Post Office Box.

The use of temporary job sites should be requested by adding the statement “at temporary job sites throughout the State of Arkansas.” The use of licensed radioactive material at temporary job sites will become part of the license conditions. Each separate location of temporary use does not need to be specified so long as the job sites are used only for a single job lasting less than 180 days.

**3. PERSON TO CONTACT REGARDING THIS APPLICATION**

Identify the person who can answer questions about the application. This is typically the proposed Radiation Safety Officer, unless the Applicant has named a different person as the contact. The Department will contact this individual if there are questions about the application.

**4. TELEPHONE NUMBER FOR CONTACT PERSON**

Provide the telephone number of the contact person, if different than the telephone number provided in Item 1.

**5. LICENSE FEE ENCLOSED**

Mark the appropriate choice. Provide an explanation if the License Fee is not enclosed. Review of the application will not begin until the proper fee is received by the Department.

Make all checks payable to the “Arkansas Department of Health and Human Services”.

**6. TYPE APPLICATION**

Mark the appropriate choice. If the application is for a renewal, identify the applicable Radioactive Materials License Number.

## 7. **INDIVIDUAL USERS**

List each individual to be designated as a **Radiographer, Radiographer Instructor, and Radiographer's Assistant**. A radiography license does not typically list the names of radiographic personnel. Instead, Condition 12 of the license states that "licensed materials shall only be used by radiographic personnel that have successfully completed the licensee's training program described in their license application..." It should, however, be noted that at its discretion, the Department may include the names of radiographic personnel on the radioactive material license. Maintaining documentation of training for each user on file for inspection purposes is required to demonstrate that personnel are adequately trained.

## 8. **TRAINING AND EXPERIENCE OF RADIOGRAPHIC PERSONNEL IN RADIATION SAFETY**

### a. **FORMAL TRAINING IN RADIATION SAFETY**

1. The State of Arkansas requires that before an individual serves as a Radiographer or Radiographer Instructor the individual must be certified through by a radiographer certification program through a certifying entity.
2. Submit documentation of radiographer certification and the radiation safety training for each person listed in Item 7 of the application. Restrict training documentation to relevant information; i.e., demonstrating that the individual has the radiation safety training and experience specific to the requested activities to be conducted. Appropriate training certificates are acceptable, but must be supplemented with documentation of completion of training in company operating and emergency (O&E) procedures if third parties were used to provide training.
3. Appendix C, "Radiation Safety Training Requirements" of this guide provides detailed descriptions of the radiographic personnel training and qualification requirements. The required documentation that is to be submitted for each radiographer classification is also described.
4. Maintaining documentation of training (including valid training certificates) on file for inspection purposes for all radiographic personnel is required by the Department to demonstrate that radiography personnel are adequately trained.

b. **EXPERIENCE**

Describe any additional relevant work experience with radiation and include where the experience was obtained. Descriptions of experience are typically unnecessary unless seeking approval for an individual to act as a Radiographic Instructor for in-house radiation safety training.

<p><b>Note:</b> To prevent the potential for identity theft, never submit documentation that lists individuals' social security numbers or birth dates.</p>
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9. **RADIATION SAFETY OFFICER (RSO)**

- a. Provide the name of the individual assigned the position of RSO. This person is designated by, and responsible to, management for the for implementing the Radiation Safety Program and the As Low As Reasonably Achievable (ALARA) Program, and for ensuring compliance with the applicable regulations and license provisions. The ALARA Program is discussed in Appendix A, "ALARA Program.

The RSO must have independent authority to stop operations that are considered unsafe. It must be committed to and confirmed by management that the individual serving as the RSO will have the sufficient time to and commitment from management to implement the radiation safety program to insure that the radioactive material is used in a safe manner. Management involvement in and support of the radiation protection program is discussed in Item 25, Management Control.

- b. The RSO must be based in the immediate area and able to provide direct oversight of the licensee's daily operations. The RSO may delegate certain day-to-day tasks of the radiation protection program to other responsible individuals (potential designees). For example, a large testing company with multiple field stations may appoint individuals designated as "site RSOs" who assist the RSO and are responsible for the day-to-day activities at the field stations. Licensees may also appoint other individuals who may "step-in" as an emergency contact when the RSO is unavailable. The potential designees do not need to meet the required RSO qualifications; however, these individuals should be qualified, experienced radiographers who are adequately knowledgeable of the activities to which they are assigned. Applicants do not have to identify other responsible individuals if day-to-day tasks, etc. will not be delegated.

- c. As a minimum, the RSO must complete radiographer training, and must have a minimum of 2,000 hours (one year full-time field experience) of hands-on experience as a qualified radiographer, and must have formal training in establishing and maintaining a radiation protection program. Documentation of the RSO's training and experience must be included in Item 8, above.

#### **HOLD FOR APPENDIX**

To be considered eligible for the RSO position, an individual must be a qualified radiographer. This should be a course specifically designed to provide training in running a radiation safety program, a basic radiation safety course is not acceptable. While a course particular to industrial radiography would be highly encouraged, this is not required. Acceptable training programs would be a classroom course typical of those provided through universities or commercial training facilities. Hands-on experience means experience in all areas considered to be directly involved in the radiography process. This includes taking radiographs, surveying device and radiation areas, transporting the radiography equipment to temporary jobsites, posting, work sites, radiation area surveillance, completing and maintaining records, etc. Excessive time spent in only one or two of these operations (film development and/or area surveillance) should not be counted toward the 2,000 hours. Experience with radiography using x-rays can be included; however, the majority of experience should be in isotope radiography.

#### **10. TRAINING PROGRAM**

Describe the training program for Radiographic Personnel and for Ancillary Personnel. The training must be adequate to insure that individuals working with radioactive material, or who may be in the general vicinity where the radioactive material is used or stored, are aware of possible hazards, safety precautions, and emergency procedures that are associated with the use of the material.

Appendix C, "Radiation Safety Training Program", describes the types of training programs that are required and prescribes the frequency at which each program is conducted. Appendix C may be used as the description of the Applicant's training program provided it is included with the application along with a statement of commitment to the program by the Applicant.

## 11. RADIOACTIVE MATERIAL

a. **ELEMENT AND MASS NUMBER**

Specify each isotope of radioactive material requested, for example, "Iridium-192". Also, identify any depleted uranium (DU) that is used as shielding material.

b. **CHEMICAL AND/OR PHYSICAL FORM**

Identify each form of radioactive material requested, for example, "Sealed Source, Source Assembly, etc.". State the name of the source manufacturer and the sealed source model number.

c. **MAXIMUM AMOUNT TO BE POSSESSED AT ANY ONE TIME**

Indicate the total amount of radioactive material requested and the maximum activity per source. The following is an example of the information to be submitted and the proper format to provide the information.

(a) <b>ELEMENT AND MASS NUMBER</b>	(b) <b>CHEMICAL AND/OR PHYSICAL FORM</b>	(c) <b>MAXIMUM AMOUNT TO BE POSSESSED AT ANY ONE TIME</b>
1. Iridium-192	1. Sealed source (XYZ, Inc. Model 123 )	1. 3 sources; no single source to exceed 120 Curies
2. Cobalt-60	2. Sealed source (XYZ, Inc. Model 456 )	2. 2 sources; no single source to exceed 110 Curies

d. **PURPOSE FOR WHICH RADIOACTIVE MATERIALS LISTED IN ITEM 11.a. WILL BE USED**

Specify the use for each source of radioactive material requested. Include the name of the manufacturer of the exposure device and/or source changer in which each sealed source will used or stored. The following is an example of the information to be submitted and the proper format to provide the information.

1. and 2. For use in XYZ Corporation Model 2000 exposure device for industrial radiography.
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e. **Additional information to be provided**

1. Confirm that each sealed source, device, and source/device combination possessed is registered in the Sealed Source and Device Catalogue as an approved sealed source or device by the U.S. Nuclear Regulatory Commission or an Agreement State and will be possessed and used in accordance with the conditions specified in the registration certificate.
2. Confirm that all radiographic exposure devices, source assemblies or sealed sources, and all associated equipment which meet the requirements specified in Paragraph RH-1801, "Equipment Control" of the Rules and Regulations will be used in radiographic operations
3. Confirm that associated equipment is compatible with the exposure devices, source changers, and sealed sources containing radioactive material.

**12. LEAK TESTS**

Each sealed radioactive source shall be periodically tested to determine if radioactive material is leaking from the sealed source in the exposure device. Additionally, leak testing of devices containing depleted uranium (DU) shielding to determine whether there is any radioactive leakage from the device is also required. Sealed sources containing byproduct material must be leak tested at intervals not to exceed 6 months and DU devices tested at intervals not to exceed 12 months.

Appendix D, "Leak Test Procedures", describes the requirement for leak testing and provides instructions for performing and documenting the tests.

Form D, entitled "**Leak Tests for Sealed Sources**", requests specific information on the proposed leak test program and how it will be performed. Complete Form D and submit it with the application.

**13. RADIATION DETECTION INSTRUMENTS**

The possession and use of appropriate radiation survey instruments is required for all licensees who will conduct industrial radiography operations. The survey instrument shall be capable of accurately measuring the radiation fields produced by the sealed source currently in use, and be visually checked for damage and for proper operation with a radiation source at the beginning of each day of use and at the beginning of each work shift to insure proper operation.

Licensee shall keep sufficient calibrated and operable radiation survey instruments at each location where radioactive material is present to make the required radiation surveys. The instruments shall be capable of measuring a range from 2 mrem (0.02 mSv) per hour through 1 rem (10 mSv) per hour.

Radiation survey instruments shall be calibrated at intervals not to exceed 3 months and after each servicing, (except for battery changes).

#### **14. CALIBRATION OF INSTRUMENTS**

Radiation survey instruments must be periodically calibrated (**not to exceed 3 months and after each servicing**) to insure the instrument accurately detects and measures radiation from the sealed source. The calibration service must be performed by a Service Vendor who is licensed or registered to perform the service by the Arkansas Department of Health and Human Services, the U.S. Nuclear Regulatory Commission, or an Agreement State. However, the licensee may be authorized to calibrate instruments “in-house” provided certain requirements are met. Additional guidance for performing instrument calibration is provided in Appendix E. Complete Form E marking the appropriate spaces to describe how the calibration will be performed.

If an applicant elects to perform radiation survey instrument calibration “in-house”, detailed, step-by-step procedures are required to be submitted for each instrument that will be calibrated. Also, the radiation source(s) that will be used for calibration must be included in Item 11, Radioactive Material.

#### **15. PERSONNEL MONITORING PROGRAM**

- a. The Licensee may not permit any individual to act as a Radiographer or a Radiographer’s Assistant unless, at all times during radiographic operations, each individual wears, on the trunk of the body, a combination of a direct reading pocket dosimeter, an operable alarm ratemeter, and either a firm badge , a thermoluminescent dosimeter (TLDs) and optically stimulated luminescent dosimeter (OSLD. These Personnel Monitoring Devices are described in Appendix F, “Personnel Monitoring”.

At permanent radiography installations where other appropriate alarming and warning devices are routinely used, the wearing of an alarming ratemeter is not required.

Describe the proposed personnel monitoring program by completing Appendix F-1, Form F-1, “Personnel Monitoring Program” and submit the completed Form with the application.

- b. Radioactive Material Licensees are required to insure that no member of the public receives a radiation dose from sources under the control of the Licensee that exceeds the dose amounts referenced in the Rules and Regulations for Control of Sources of Ionizing Radiation, Paragraph RH-1208, “Dose Limits for Individual Members of the Public”. These limits are not to exceed:

- (1.) **Total Effective Dose Equivalent: 100 millirem per year**
- (2.) **Dose in any unrestricted area: 2 millirem in any one hour**

Paragraph RH-1209, “Compliance with Dose Limits for Individual Members of the Public” requires that the Licensee show compliance with the annual dose limit.

Appendix F-2, “Dose Limit for Members of the Public”, provides additional information on the annual dose limits for members of the public and provides a methodology for determining and documenting the dose. Complete Appendix F-2 by marking the appropriate boxes and providing the requested information.

Submit the completed Appendix F-2 with the application.

## 16. FACILITIES AND EQUIPMENT

Radioactive material licenses are written to authorize the performance of industrial radiography at either permanent radiographic installations or at temporary job sites inside a facility (e.g., manufacturing plant), or throughout the State of Arkansas (remote pipeline), or some combination thereof.

Appendix G, “Facilities and Equipment” contains the information that must be submitted in the application thoroughly describing the physical facilities and equipment associated with the storage and use of radiographic devices at the proposed “use locations”. The facilities and equipment used in the transportation of radiographic devices to temporary job sites, including the vehicular storage and security of the device in transport, must also be described and submitted.

<b>Note:</b>	<b>Storage of radiographic devices or radioactive material in a private residence or motel/hotel room overnight on a temporary basis is not authorized or approved.</b>
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The Department, in cooperation with the U.S. Nuclear Regulatory Commission and other Agreement States, has implemented increased controls (ICs) for Radioactive Material Licensees that possess radioactive material in quantities of concern. These IC requirements for Industrial Radiography licensees are

contained in Appendix H, “Increased Controls for Licensees that Possess Sources Containing Radioactive Material Quantities of Concern”. The ICs must be implemented in addition to the currently mandated requirements of the Rules and Regulations, Paragraph RH-1306.a “Storage of Sources of Radiation”.

**Applicants shall review Appendix H and provide a statement in the Application confirming that all requirements described in the Appendix H have been implemented.** However, as appropriate, the statement may also contain the following information:

a Department Notification

- (1.) If the Licensee is unable to comply with any of the requirements in Appendix H
- (2.) If compliance with any of the requirements is unnecessary because of specific circumstances of the Licensee, or
- (3.) If implementation of any of the requirements would cause the Licensee to be in violation of the provisions of any regulation or the license.

The notification shall provide detailed justification for seeking relief from or variation of any specific requirement.

b. Adverse Impact

If it is considered that implementation of any of the requirements detailed in Appendix H would adversely impact the safe operation of the facility, the Application must contain notification of Department of the following:

- (1.) Specific description of the adverse safety impact,
- (2.) Technical basis for the determination that the requirement would have an adverse safety impact, and
- (3.) Either a proposal for achieving the same objectives specified in the Appendix H requirement in question, or a schedule for modifying the facility to address the adverse safety condition.

If neither approach is appropriate, the response must referenced/supplemented to paragraph 1, above, to identify the condition as a requirement with which you cannot comply, with attendant justifications as required in paragraph 1, above.

c. Schedule

If the ICs are not implemented and operational at the time of submitting the Application, provide a schedule and a commitment to follow the schedule for completion of each requirement detailed in Appendix H. **The implementation of the ICs will be inspected immediately following the issuance of the Radioactive Material License.**

- d **This portion of the Application shall be marked as "Withhold from Public Disclosure Under RH-4040."**

## 17. **RADIATION SURVEY PROGRAM**

Radiation surveys are required to be performed by the Radioactive Material Licensee during the use, movement, and storage of radiographic devices to help insure that the radioactive material is used in a safe manner in accordance with regulatory requirements. Radiation surveys must be made whenever a radiographic device is manipulated or moved.

Appendix I, "Radiation Surveys", provides an example list of radiation surveys that are required to be performed during radiographic operations, including transportation. The requirement to perform radiation surveys, along with the survey methodology and documentation, must be incorporated into the Radiation Safety Program and the Operating and Emergency Procedures, addressed in Items 23 and 24 of this Application.

Complete Item 17 of the Application by including the specific Operating and Emergency Procedure Number in the Procedure Reference column in Appendix I and submitting the Appendix with the Application. Additional surveys that will be performed by the Licensee may also be included in Appendix I.

## 18. **ORDERING, RECEIVING, AND SHIPPING RADIOACTIVE MATERIAL**

Radioactive material may only be possessed and used in accordance with a Radioactive Material License issued the Department, the U.S. NRC, or other Agreement State. The types and quantities of radioactive material that are allowed are specified in the license and no other licensable type or quantity of radioactive material may be possessed and used.

Identify the Name and Title of the individual who will order radioactive material and will maintain possession within the limits contained in the Radioactive Material License.

The receipt and opening of packages containing radioactive material must be performed in accordance with the Rules and Regulations for Control of Sources of Ionizing Radiation, Paragraph RH-1307, "Procedures for Picking Up, Receiving and Opening Packages".

Appendix J, “Ordering, Receiving and Opening and Shipping Packages Containing Radioactive Material”, provides additional information on each of these topics. Appendix J contains adequate procedures that may be used to comply with these requirements; however, procedures that are equivalent to Appendix J may also be submitted.

Complete Item 18 of the Application by providing the name and title of the individual in Appendix J and submit Appendix J with the Application as the procedures that will be used. If the Appendix J procedures will not be used, submit equivalent procedures describing ordering radioactive material, and the receiving and opening of packages containing radioactive material.

## **19. WASTE DISPOSAL**

Radioactive material contained in radiographic devices, including depleted uranium shielding, must be disposed of in accordance with the Rules and Regulations for Control of Sources of Ionizing Radiation, Paragraph RH-1400 a., “General Requirements” for Waste Disposal.

The preferred method of disposing of radiographic devices containing radioactive material is to return (transfer) the radioactive source to the manufacturer (an Authorized Recipient). However, it is also acceptable to transfer the gauge to a licensed, commercial radioactive waste disposal company (an Authorized Recipient). Provide the Name, Address and Radioactive Material License Number (issued by the U.S. NRC or an Agreement State) of the Service Vendor who will provide the waste disposal services in the appropriate spaces in Appendix K

Complete Item 19 of the application by completing and submitting Appendix K, “Disposal or Transfer of Radioactive Material” with the application.

## **20. CONTROL AND SECURITY OF RADIOACTIVE MATERIAL**

Radioactive material at temporary job sites must be controlled and secured to prevent individuals from entering radiation areas when the gauge is being used, and to prevent the unauthorized removal of the radioactive material from the site.

Procedures must be developed and implemented to establish and control access to restricted areas at temporary job sites. The procedures must also address the requirement that the gauge and restricted area must be kept under constant surveillance when the gauge is in use at the job site. Procedures must also be used to insure the gauge is secured to prevent unauthorized removal from temporary job site storage.

Appendix L, “Access Control and Security of Temporary Job Sites”, contains procedures that may be used to comply with the requirement to control and secure temporary job sites.

Appendix G, “Security of Portable Gauges” describes the security requirements that must be implemented at temporary job sites to help insure the gauges are not removed from the job site or temporary storage by unauthorized individuals.

Complete Item 20 of the Application by describing the control and security methods that will be used. If Appendix L and Appendix G procedures will be used, submit each Appendix with the application. If the Appendix L and Appendix G procedures will not be used, submit equivalent procedures describing how restricted areas will be established and controlled and how the gauge will be secured while in use.

## **21. TRANSPORTATION**

Radiographic devices and/or source changers containing radioactive material must be transported in accordance with U.S. Department of Transportation (DOT) regulations, regardless if the device is being transported by a common carrier on public highways or by the Licensee under an Arkansas Radioactive Material License to a temporary job site. Section 4 of the Rules and Regulations for Control of Sources of Ionizing Radiation also establishes the requirement for compliance with U.S. DOT regulations. Licensees are responsible for ensuring that the radiographic devices or source changers are properly packaged, marked, labeled, secured, blocked and braced, and that proper documentation accompanies the shipment.

U.S. DOT regulations, 49 CFR 172, Subpart H requires every hazardous material employer (Licensee) to provide all Authorized Users who package and transport radioactive materials receive initial and refresher (every three years) hazardous material safety training in accordance with U.S. DOT, 49 CFR 172, Subpart H. The Licensee is responsible for training, testing, documenting, certifying, and maintaining records of this training for all Authorized Users.

Appendix M, “Transportation of Radiographic Devices”, provides some general guidelines for transporting radioactive material. However, applicants are urged to obtain current U.S. Department of Transportation regulations (49CFR) from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburg, PA 15250-1954. The web site for the U.S. Department of Transportation is **[www.dot.gov](http://www.dot.gov)**.

Complete Item 21 of the Application by confirming in writing that the appropriate U.S. DOT regulations will be followed when transporting or preparing a package containing radioactive material for shipment. Also, confirm that all Authorized Users will be provided training as required by U.S. DOT, 49 CFR 172, Subpart H.

## 22. **OPERATING PROCEDURES**

### **Radiation Safety Program**

Industrial Radiography Licensees are required to develop, implement, and maintain a comprehensive radiation safety program. The program must be commensurate with the scope and extent of activities proposed for the use of radioactive materials in industrial radiography, and must describe how safe operations, ALARA radiation dose, and regulatory compliance will be achieved through training, procedures, and equipment. A written description of the Radiation Safety Program must be submitted to the Department. Appendix N contains topics that must be included in the Radiation Safety Program.

### **Operating procedures**

Radiographic devices must be used and maintained in accordance with the manufacturer's instructions for use, the Radioactive Material License and the Rules and Regulations for Control of Sources of Ionizing Radiation. In order to minimize radiation doses to the radiographic personnel and to members of the public, the Applicant must adopt operating procedures and practices that comply with and reflect the As Low As is Reasonably Achievable (ALARA) philosophy in all phases of radiographic device use and operation.

The RSO is responsible for assuring that the radiographic devices are used as required by the Operating Procedures and in a manner that is ALARA. The RSO is also responsible for completing certain radiation protection administrative functions that are required by the Rules and Regulations, such as periodic job performance inspections of radiographic personnel or periodically leak testing the radioactive sources. These functions must also be addressed in the operating or equivalent procedures.

Appendix N includes a listing of operating procedure topics that, as a minimum, must be addressed in the Operating Procedures.

Complete Item 22 of the Application by submitting a copy of the Radiation Safety Program and all Industrial Radiography Operating Procedures that will be implemented and used.

## 23. **EMERGENCY PROCEDURES**

Emergency procedures must be developed and implemented to manage an emergency, or abnormal event, involving radiographic devices containing radioactive material. An example of an emergency is the radioactive source has failed to return to the safe position in the radiographic device. Since it is not possible to specify all possible situations that would constitute an emergency, a general emergency procedure is acceptable. The procedure must describe the

licensee's actions to minimize radiation dose during and after an event. Additional procedures and instructions such as posting the restricted area, maintaining surveillance of the area, and notifying the Radiation Safety Officer must also be included.

Appendix O, "Emergency Procedures" contains emergency procedures that may be used by the Applicant to guide the emergency response to various emergencies or events involving radiographic devices. However, the Applicant may submit equivalent emergency procedures with the Application for review by the Department.

Complete Item 23 of the Application by submitting a copy of all emergency procedures that will be followed when responding to an event.

#### **24. ADMINISTRATIVE PROCEDURES**

The RSO is responsible for documenting, recording, and maintaining records of radiation safety activities, as well as informing/notifying employees of matters pertaining to radiation safety, as specified in the Rules and Regulations for Control of Sources of Ionizing Radiation.

Appendix P, "Administrative Requirements" provides a summary listing of requirements in the Rules and Regulations which must be included in the Radiation Safety Program.

Complete Appendix P by marking the appropriate boxes indicating that the requirements have been read, and are understood, and will be complied with by the Radiation Safety Program. Submit the completed Appendix P with the application.

#### **25. MANAGEMENT CONTROL**

**Licensee management is responsible for insuring that the Radiation Safety Program and the ALARA Program, as discussed in Appendix A, are implemented and maintained.** Management involvement in and support of the Radiation Safety Program is critical to the success of the program. Senior management must give the Radiation Safety Officer the necessary authority and responsibility and must provide the necessary resources to implement the Radiation Safety Program and must appropriately support his actions. The Radiation Safety Officer must be afforded the necessary time in the work period to perform the assigned duties of the Radiation Safety Officer.

Submit a corporate organizational chart showing to whom the Radiation Safety Officer reports radiation safety issues. Confirm that Senior Management has granted the Radiation Safety Officer the necessary authority and responsibility by for implementing the Radiation Safety Program, including the authority to stop potentially unsafe work involving the radiation sources.

Confirm that the annual review of the Radiation Safety Program, as required by the Rules and Regulations for Control of Sources of Ionizing Radiation, Paragraph RH-1004, “Radiation Protection Programs” will be performed and documented. Appendix Q, “Radiation Safety Program Audit” contains an example annual program audit that is specific to industrial radiography. The example audit in Appendix Q is acceptable to the Department. It should be noted that not all areas included in the example audit may be applicable to every industrial radiography licensee. Also, please confirm that the report of the findings of the audit will be reviewed and approved by Senior Management.

## 26. CERTIFICATE

The Application for a Radioactive Material License and the Radioactive Material License are legal documents. License applications and all correspondence must be signed and dated by an individual(s) who are authorized to make legally binding statements or act on behalf of the Applicant. This individual is the Certifying Official.

<b>NOTE:</b>	<b>Each item of this application to which you commit will be reviewed during your program compliance inspections. You should be able to provide documentation to demonstrate compliance with the rules and regulations and the license.</b>
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<b>NOTE:</b>	<b>Please identify all other individuals in the Applicant’s organization who may be authorized to sign documents for the Applicant/Licensee.</b>
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## IV. LICENSE AMENDMENTS

Licensees are required to conduct operations in accordance with applicable regulations and the statements, representations and procedures contained in the license application and supporting documents. The license must be amended if any changes are planned. **Submittal of an amendment request does not allow immediate implementation of proposed changes.** Until the license has been amended to reflect approval of the change(s), the licensee must comply with the original terms and conditions of the license. Applications for license amendments may be filed in letter form. The request must be dated and signed by a certifying official, must identify the license by name and number, must be submitted in

duplicate, and must clearly describe the nature of the changes, additions or deletions requested. References to previously submitted documents must be specific and identify the applicable information by date, page and paragraph. The Licensee must maintain a copy of the submitted and referenced documentation on file for inspection.

<b>Note:</b>	<b>To prevent the potential for identity theft, never submit documentation that lists individuals' social security numbers or birth dates.</b>
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## V. LICENSE RENEWAL

A Radioactive Material License remains in effect for a specific period of time, typically five to seven years, unless some other action has been taken by the Department or the licensee. The expiration date is stated on the cover page of the Radioactive Material License or by subsequent license amendment. The Licensee is responsible for completing and sending an Application For Radioactive Material License to the Department prior to the expiration date of the license.

An application for license renewal must be received by the Department at least 30 days prior to the expiration date. This filing will ensure that the license does not expire until final action has been taken on the application, as addressed in the Rules and Regulations for Control of Sources of Ionizing Radiation, Paragraph RH-411, "Renewal of Licenses". If the application is received less than 30 days before the expiration date, the facility or individual may be without a valid license when the license expires. Renewal applications must be filed using the Department's Application For Radioactive Material License.

Renewals require submittal of an entirely new application, completed as if it were an application for a new license, with complete and up-to-date information about the Applicant's radiation protection program, demonstrating compliance with all licensing and regulatory requirements in effect at the time of renewal. Renewal applications should be submitted without reference to documentation and information submitted previously.

<b>Note:</b>	<b>To prevent the potential for identity theft, never submit documentation that lists individuals' social security numbers or birth dates.</b>
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## **VI. LICENSE TERMINATION**

Prior to license termination, the Licensee must properly dispose of all licensed radioactive material. A request to terminate the Radioactive Material License may be filed in letter form to the Department prior to the expiration date of the license.

## **VII. LIST OF ATTACHMENTS**

**TABLE 1. MODEL PROCEDURES**

<b>Appendix</b>	<b>Title</b>	<b>Attached</b>	<b>Equivalent</b>	<b>N/A</b>
App. A	ALARA Program			
App. B	Duties and Responsibilities of the Radiation Safety Officer			
App. C	Radiation Safety Training Program			
App. D	Leak Tests of Sealed Radioactive Sources			
App. E	Calibration of Radiation Survey Instruments			
App. F-1	Personnel Monitoring			
App. F-2	Dose Limits for Members of the Public			
App. G	Facilities and Equipment			
App. H	Increased Controls			
App. I	Radiation Surveys			
App. J	Ordering, Receiving, Opening and Shipping Packages Containing Radioactive Material			
App. K	Disposal or Transfer of Radioactive Material			
App. L	Access Control and Security of Temporary Job Sites			
App. M	Transportation of Radiographic Devices			
App. N	Operating Procedures			
App. O	Emergency Procedures			
App. P	Administrative Requirements			
App. Q	Radiation Safety Program Annual Review			

**TABLE 2. EXHIBITS**

<b>Exhibit</b>	<b>Title</b>	<b>Attached</b>	<b>Equivalent</b>	<b>N/A</b>
Ex. A	Model Shipping Paper – Common Carrier Shipments			
Ex. B	Model Shipping Paper – Exclusive Use Shipments			
Ex. C	Radiography Equipment Inspection and Maintenance			
Ex. D	Performance Review Checklist			
Ex. E	Information to Consider for Procedures			
Ex. F	Daily Maintenance Check of Radiography Equipment			
Ex G	Model Emergency Response Information			

