

*Instructions for the Preparation of
Applications for the use of Sealed
Sources in Fixed Gauging Devices*

Radiation Protection Division

Introduction

This guide describes the type of information needed to prepare an application for a specific license for receipt, possession, use, and transfer of radioactive material contained in fixed gauging devices, such as continuous level, belt weigh scale, or liquid density. The regulations listed below were used for the preparation of this guide. You will receive for reference purposes Chapters 246-220 through 246-255 WAC (the Radiation Regulations) when your new license is delivered. You should have a copy available if this is a renewal application. This guide does not substitute for an understanding of the regulations.

1. Chapter 246-221 WAC "Radiation Protection Standards"
2. Chapter 246-222 WAC "Radiation Protection - Worker Rights"
3. Chapter 246-232 WAC "Radioactive Material - Licensing Applicability"
4. Chapter 246-254 WAC "Radiation Protection - Fees"
5. 10 CFR (Code of Federal Regulations) part 71, "Packaging and Transportation of Radioactive Material."

Filing an Application

The information submitted must be sufficient to allow the department to determine that proposed equipment, facilities, procedures, and controls are adequate to protect health and minimize danger to life and property. Information submitted should pertain to the specific activities for which authorization is sought and should be complete. Submission of incomplete information will result in delays because of the correspondence necessary to obtain supplemental information.

Since licensees are required to comply with department rules and regulations, license conditions, and the content of the submitted applications, at least one copy of all information submitted to the department must be kept by the applicant for reference.

Radioactive Materials License Application Form RHF-1FG

Two copies of the Application Form RHF-1FG should be completed following the instructions given in this guide. The **original copy** should be filed with this Department and one kept by the applicant. Since the space provided on the form is limited, additional sheets should be appended as necessary. Supplemental information should be labeled to identify the applicant and reference the items for which information is being given.

A license fee is required. Consult the supplemental license fee information mailed to you along with this application packet on how to compute your license fee. To apply for a new radioactive materials license for fixed gauging devices, enclose a check or money order payable to Department of Health (no cash) for the amount of fee including the new application fee, mail fee and **original copy** of the completed RHF-1FG form (with attachments) to the address given in the supplemented licensing fee information. However, if this is a renewal application, your annual fee will be billed separately and only the original copy of RHF-1FG need be sent to:

State of Washington,
Department of Health
Division of Radiation Protection
P O Box 47827
Olympia, WA 98504-7827

in accordance with the directions contained in the Application cover letter.

Item 1. Applicant and Locations of Use. The applicant, corporation, or other legal entity should be specified by name and mailing address in Item 1(a). Individuals should be designated as the applicant only if they are acting in a private capacity and the use of radioactive material is not connected with their employment for a corporation or other legal entity.

The permanent facility, where the device(s) are to be used or stored and where records will be kept, must be identified in 1(b). You must indicate this location by street address, city and zip code; no P.O. Box or rural route reference. If a street address is not available, then directions from an easily located reference point such as highway intersection are acceptable. Attach additional properly keyed sheets if more space is needed.

Item 4. Individual Users. Individual users must be specifically named. An authorized user must be present and directly supervise use at all times. User qualifications must include, at a minimum, the completion of an approved training course. This may be provided by the device manufacturer or another group that is approved by a Licensing Agency to provide this service.

If the applicant desires to provide in-house training for facility personnel, a detailed training program including outlines, hours for each topic, and testing material must be attached for Department review and approval.

Item 5. Radiation Safety Officer. A radiation safety officer shall be named in Item 5a (include training certificates). A signed statement (Appendix B or equivalent) must be included with the application outlining the named individual's duties and responsibilities. The appropriate choice must be indicated in Item 5b. The radiation safety officer is expected to coordinate the safe use of the nuclear gauging devices and ensure compliance with the requirements of Title 246 WAC, License Conditions, and applicable Department of Transportation regulations.

Items 6, 7, and 8. Radioactive Material and Sealed Source Description. Each sealed source to be used in a given gauge or device should be specified by nuclide (for example, Cesium-137, Americium-241, etc.), manufacturer and model number of each source and activity in millicuries, curies, or Becquerels. Itemize radioactive materials with letters (A, B, C, etc.) in 6. Identify corresponding features of radioactive material in columns 7 and 8 with like letters.

As an example:

6. Radioactive Material (Element and mass number of each.)
 - A. Americium-241.

7. Sealed source manufacturer and model number.
 - A. Sealed sources (ABC Company, Model Number 123).

8. Maximum activity of each source.
 - A. No source to exceed 40 millicuries.

Item 9. Device and Use Description. The device manufacturer's name and

model number of each gauge or device utilizing the source(s) listed in Items 6, 7, and 8 must be specified and keyed (using the appropriate letter) to the listed sources. In addition, the purpose for which the gauges or devices will be used must be stated.

As an example:

9. Device and Use Description (Include in description manufacturer and model numbers in which radioactive sealed sources will be used.)
 - A. To be used in ABC Inc., Model 500 level gauge for process measurements.

Item 10. Maintenance of Gauges. If the applicant wishes to be authorized to perform maintenance and repair on gauges and devices involving access to the source holders, and/or dismantling of the shielding or shutter devices, specific information on the step-by-step procedures to be followed including radiation safety precautions must be supplied. In addition, the names of personnel and the specific pertinent training of the personnel who will be performing such maintenance and repair must be given.

Items 11 and 12. Instrumentation and Calibration. Radiation detection instruments such as survey meters are not normally required if the applicant plans only to use the gauges and devices for their intended use and does not plan to perform significant maintenance on the gauges and/or devices involving access to the sources and source holders. However, if the applicant does intend to perform maintenance, the survey instrument(s) that will be available at each site where maintenance will be performed must be specified.

If radiation survey meters are necessary for the proposed activity, at least one calibrated low-range beta-gamma (0-20 or 0-50 mR/hr) survey meter must be available at each maintenance area for monitoring during and following the maintenance procedures. Survey meter calibration provisions must be described. If the applicant intends to contract for the calibration of instruments, the name, address and license number of the calibration firm must be specified together with the frequency of the calibration (required at least every 12 months). The applicant should contact the firm that will perform the calibrations to determine if information concerning calibration procedures has been filed with the U.S. Nuclear Regulatory Commission or, as appropriate, this Department. If information has not been filed, information concerning calibration procedures must be obtained and submitted.

If the applicant intends to perform the survey instrument calibrations, state the frequency and describe the methods, procedures and equipment for performing the calibrations, and submit a completed Appendix C or equivalent procedures.

An adequate calibration of survey instruments cannot be performed with built-in check sources. Electronic calibrations that do not involve a source of radiation are also not adequate to determine the proper functioning and

response of all components of an instrument.

Daily or other frequent checks of the survey instrument function must be supplemented every twelve months with a two-point calibration on each scale of each instrument with the two points separated by at least 50 percent of the maximum scale divisions. Survey instruments must also be calibrated following repair. A survey instrument may be considered properly calibrated when the instrument readings are within ± 10 percent of the calculated or known values for the points checked. Readings within ± 20 percent are considered acceptable if a calibration chart or graph is prepared and attached to the instrument.

The description of applicant's calibration procedures must include, at a minimum:

- A. The manufacturer and model number of each radiation source to be used;
- B. The nuclide and quantity of radioactive material contained in the source;
- C. The accuracy of the source(s). (The traceability of the source to an NIST primary standard must be provided);
- D. The step-by-step procedures for calibration, including associated radiation safety procedures, a diagram of the calibration area; and
- E. The name(s) and pertinent experience of person(s) who will perform the calibrations.

Item 13. Personnel Monitoring. Normally, personnel using fixed gauges are not required to wear personnel monitoring devices such as film badges or thermoluminescent dosimeters (TLD). However, if non-routine use as in Item 10 is anticipated, personnel monitoring devices are required. Specify the frequency of exchange, type of radiation detected and the name and address of the supplier of the film badge or TLD service.

Item 14. Facilities and Equipment. The applicant must provide a description of gauge or device placement at each location. Gauges must be kept in such a manner as to ensure against unauthorized removal or use as required by WAC 246-221-150. A simple annotated sketch or sketches of the permanent mounting or storage area or areas, etc., showing relationship to actively occupied areas should be submitted. The sketch must show what is on the other side of walls adjacent to these areas.

Item 15. Radiation Protection Program. A signed Appendix D or equivalent procedures must be included to ensure compliance with the provisions of Chapter 246-221 WAC "Radiation Protection Standards" and Chapter 246-222 WAC "Radiation Protection - Worker Rights." The applicant must submit a copy of the written radiation safety and emergency procedures (Appendix D or equivalent). The procedures should be in the form of written instructions to

users and must cover the following items:

- A. Means of preventing unauthorized access, use or removal of gauges from the designated place(s) of use and storage at permanent locations;
- B. Emergency procedures to be followed in case of accidents involving damage or loss of the gauges or devices, including names and telephone numbers of the individual(s) within the applicant's organization who should be notified and who would, in turn, notify the local police, fire department, and state radiation protection personnel; and
- C. Specific instructions to the users informing them that any maintenance on the gauges involving dismantling, removal of source holder(s), etc., must not be performed by the user and must only be performed by the manufacturer of the device, unless the applicant has specifically requested authority for performing maintenance in the application and such authority is granted by the license.

Item 16. Leak Test Program. The applicant is required to choose from one of the three options given for this program. Check the box that is desired.

Item 17. Lock-Out Procedures. The applicant is required to establish and submit a procedure that will ensure gauging devices shall be locked in the closed, shielded, or off position anytime:

- A. An individual may need to work in the vicinity of the device; or
- B. The device will not be in use for more than 100 consecutive hours.

The procedure should include specific reference for each device and require Radiation Safety Officer approval prior to changing the devices' status.

Item 18. Disposal or Transfer. In the event the sealed sources will no longer be needed, the applicant must provide for disposal or transfer. Sealed sources containing radioactive material may be returned to the manufacturer, transferred to another licensee authorized to possess the specific quantity and form being transferred, or transferred to a licensed waste disposal firm.

Item 20. Certificate. Must be filled out as indicated. It is to be signed by a facility manager (not Radiation Safety Officer) unless the RSO is also management. The title indicated should be one that identifies the signer as a

manager.

Amendment and Renewal of Licenses

Application for amendment of existing licenses should be filed in the same manner as initial applications or may be filed in letter form. The application should clearly identify the license which is to be amended by license number. The exact nature of the requested changes should be specified and additional supporting information, as necessary, must be provided. Renewal applications must contain complete and up-to-date information concerning the applicant's current program.

Licenses are normally issued for a period of five (5) years. If an application for license renewal is filed thirty (30) days or more before license expiration, the existing license remains in effect until the new application has been finally acted upon.