



STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF RADIOLOGICAL HEALTH  
WILLIAM R. SNODGRASS TENNESSEE TOWER  
312 ROSA L. PARKS AVENUE, 15th FLOOR NASHVILLE, TN 37243

**GENERAL INSTRUCTIONS FOR PREPARING AN APPLICATION FOR CERTIFIED REGISTRATION (RHS 8-8)**

An Application for Certified Registration to use an accelerator must complete Form RHS 8-8 and must attach to the completed form the additional information indicated. **NOTE: Submit all shielding and facility information for approval at least 60 days prior to on-beam testing.** Send application and supplemental information to the Division at the address above, or submit application to [xray.registration@tn.gov](mailto:xray.registration@tn.gov).

1. a. Identify the legal entity in whose name the Certified Registration should be issued and who is to be legally responsible for the use of the accelerator.  
b. Check appropriate block indicating organizational structure of applicant.
2. List previous Certified Registrations, by number. Select the application type: "New", "Renewal," or "Amendment". If the application is for renewal or amendment of an existing Certified Registration, the number should be included.
3. List all locations at which the accelerator will be used. The name and location at which the accelerator will be used on a permanent basis should be identified by the street address, city, and state.
4. List the information called for at the head column for the accelerator to be used. Follow the alphabetical keying system provided on any supplemental sheets which are attached to the application.
5. Complete this section for new, renewal, and amendment applications. (Sections 5a. – 5i.)
  - a. Describe the facilities which have been established for the accelerator. Where a room or rooms have been constructed for this purpose, blueprints should be included which describe the dimensions of the room, including wall thickness and materials of construction; areas adjacent to, above, and below the facility; area security safeguards such as locks, posting signs, warning lights, and interlocking systems; position of operator relative to exposure points; and beam positioning limitations which may be necessary to maintain control of radiation levels external to the facility. Each requirement in 0400-20-09-.17(4) should be specifically addressed and submitted as part of your facilities description.  
The applicant should determine the anticipated radiation levels in areas adjacent to the facility in order to establish the necessary control over areas in which radiation levels may exceed the limitations contained in 0400-20-05-.07.
  - b. For assistance and additional instructions regarding information to be submitted concerning facility shielding specifications, please see the "Shielding Notes" section below.
  - c. Describe the radiation detection instrumentation which will be used. Each instrument should be identified by the name of its manufacturer and model number; the type of radiation detected; the sensitivity range in mR/hr; the number of such instruments available; and the intended use. The applicant should refer to the radiation survey instrument requirements of Chapter 0400-20-09 and/or Chapter 0400-20-08.
  - d. Describe the procedures to be followed for calibration of radiation survey instruments. If instruments will be calibrated by an outside service organization, that organization should be identified by name and address. The applicant should refer to Chapter 0400-20-08 and/or Chapter 0400-20-09.
  - e. Identify the organization that will supply film badges and list the name and model number of pocket dosimeters or pocket changers to be used.
  - f. Attach a copy of the operating and emergency procedures in the form in which they will be supplied to operating personnel. Specific requirements on the content of operating and emergency procedures are contained in Chapter 0400-20-09. Be sure to include instructions to personnel on all applicable items.

- g. Attach a schedule or description of the program for training of operators and radiographers or radiographer assistants, as applicable. The schedule or description must contain the information required by Chapter 0400-20-09, regarding training programs and must be in sufficient detail to demonstrate that individuals completing the program will meet the requirements for operators in Chapter 0400-20-09 and radiographers or radiographer assistants outlined in Chapter 0400-20-08, as applicable.
- h. Describe the internal inspection system or other management control which will be exercised to assure that State regulations, provisions contained in the Certified Registration, and the operating and emergency procedures are followed by operators, radiographers, and radiographer assistants, as applicable. Refer to Chapter 0400-20-09 and Chapter 0400-20-08.
- i. Attach a description of the overall organizational structure pertaining to the accelerator program as it will be conducted under the Certified Registration. This must include specific delegations of authority and responsibility for operation of the program. For medical use, please provide verification of board certifications and experience. Refer to Chapter 0400-20-09.

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### SHIELDING NOTES

- I. In order for the Division of Radiological Health (DRH) to decrease the amount of time necessary for the review of the shielding material that is provided concerning an application for a Certified Registration, provide answers to each of the following questions for each individual point of measurement:
  - Installed or proposed barrier thicknesses
  - Specify if the point being analyzed is a primary or secondary point
  - Specify the distance between the point of measurement and the target.  
(Unless otherwise specified, DRH will assume the distance between the isocenter and the point of measurement to be 1 meter less than the distance between the point of measurement and the target.)
  - Specify the location of the measuring point on a floor plan.  
(If this is a ceiling or floor point, please note this on the floor plan.)
  - Specify the percentage of time (use factor) that the beam will be in each direction.

*The above data, except for the floor plan, should be presented in the form of a chart identifying each measuring point and its specific data.*

- II. Specify the following data for each accelerator on this application:
  - Total weekly workload.
  - Does the accelerator have a beam stop? If so, provide the beam stop transmission ratio.
  - MeV of the accelerator
  - Specify the percent tubehead leakage. (If this is not specified, DRH will assume 0.1 giving a transmission ratio of 0.001.)
  - Specify the percent neutron leakage. (This only applies to accelerators that operate at greater than 10 MeV.)
- III. Provide a copy of your calculations for all of the above measuring points. This should enable DRH to locate any discrepancies between your calculations and ours.

For additional guidance, Reference NCRP Report 151 or its equivalent.

**All shielding calculations and facility information are to be submitted to the Division for approval at least 60 days prior to on-beam testing.**



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**APPLICATION FOR CERTIFIED REGISTRATION**

See attached form instructions - Use supplemental sheet where necessary. Be sure all items are completed and that all necessary attachments are furnished. If any portion of the application is not applicable, so state. Deficient or incomplete applications may be returned without consideration.

<b>1. (a) NAME AND ADDRESS OF APPLICANT</b>	<b>2. PREVIOUS CERTIFIED REGISTRATION NUMBER(S)</b> (Indicate if application is for new, renewal, or amendment of an existing Certified Registration) New      Renewal      Amendment Registration Number(s): _____
<b>1. (b) APPLICANT IS:</b> An Individual _____ A Partnership _____ A Corporation _____ An unincorporated Association _____ Other _____ Specify _____	<b>3. LOCATION(S) WHERE ACCELERATOR WILL BE USED AND/OR STORED</b>

**4. ACCELERATOR DESCRIPTION**

A. TYPE OF EQUIPMENT AND MANUFACTURER	B. PEAK KILOVOLTAGE	C. YEAR AND MODEL	D. TYPES OF RADIATION PRODUCED	E. MAXIMUM INTENSITY	F. PURPOSE OR USE
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**5. THE FOLLOWING INFORMATION IS ATTACHED AS A PART OF THIS APPLICATION**

	Not Applicable	Attached
a. Description of facilities (instruction 5a)	___	___
b. Shielding Calculations(instruction 5b)	___	___
c. Description of radiation detection instruments to be used (instruction 5c)	___	___
d. Instrument calibration procedures(instruction 5d)	___	___
e. Personnel monitoring equipment (instruction 5e)	___	___
f. Operating and emergency procedures (instruction 5f)	___	___
g. Training program (instruction 5g)	___	___
h. Internal inspection system or other management control (instruction 5h)	___	___
i. Overall organizational structure (instruction 5i)	___	___

**CERTIFICATE (This item must be completed by applicant)**

The applicant and any official executing this certificate on behalf of the applicant named in Item I(a) certify that this application is prepared in conformity with Tennessee Regulations for Protection Against Radiation and that all information contained therein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

DATE: \_\_\_\_\_

APPLICANT NAME IN ITEM 1

CERTIFIED BY: \_\_\_\_\_

TITLE: \_\_\_\_\_