

**10A NCAC 15 .1904 GENERAL TECHNICAL REQUIREMENTS FOR FACILITIES USING
THERAPEUTIC RADIATION MACHINES**

(a) Protection Surveys:

- (1) The licensee shall ensure that radiation shielding surveys of all new facilities, and existing facilities not previously surveyed are performed with an operable radiation measurement survey instrument calibrated in accordance with Rule .1908 of this Chapter. The radiation protection survey shall be performed by, or under the direction of, an Authorized Medical Physicist or a qualified expert and shall verify that, with the therapeutic radiation machine in a "BEAM-ON" condition:
 - (A) Radiation levels in restricted areas are not likely to cause personnel exposures more than the limits specified in Rule .1601(a)(8) of this Chapter; and
 - (B) Radiation levels in unrestricted areas do not exceed the limits specified in Rule .1601(a)(15) of this Chapter.
- (2) In addition to the requirements of Subparagraph (a)(1) of this Rule, a radiation protection survey shall also be performed:
 - (A) After making any change in the treatment room shielding;
 - (B) After making any change in the location of the therapeutic radiation machine within the treatment room;
 - (C) After relocating the therapeutic radiation machine;
 - (D) After changes in occupancy of surrounding areas; or
 - (E) Before using the therapeutic radiation machine in a manner that could result in increased radiation levels in areas outside the external beam radiation therapy treatment room.
- (3) The survey record shall include: the date of the measurements; the reason the survey is required; the manufacturer's name; model number and serial number of the therapeutic radiation machine; the instrument(s) used to measure radiation levels; a plan of the areas surrounding the treatment room that were surveyed; the measured dose rate at several points in each area expressed in microsieverts or millirems per hour; the calculated maximum level of radiation over a period of one week for each restricted and unrestricted area; and the signature of the individual responsible for conducting the survey;
- (4) If the results of the surveys required by this Paragraph indicate any radiation levels in excess of the limits specified in Parts (A) or (B) of Subparagraph(a)(1) of this Rule, the licensee shall disable the machine from use, label clearly, and not use the unit:
 - (A) Except as may be necessary to repair, replace, or test the therapeutic radiation machine, the therapeutic radiation machine shielding, or the treatment room shielding; or
 - (B) Until the licensee has received a specific exemption from the Agency.

(b) Modification of Radiation Therapy Unit or Room Before Beginning a Treatment Program. If the survey required by Subparagraph (a) of this Rule indicates that an individual in an unrestricted area may be exposed to levels of radiation greater than those permitted by Rule .1601(a)(15) of this Chapter, before beginning the treatment program the licensee shall:

- (1) Either equip the unit with beam direction interlocks or add additional radiation shielding to ensure compliance with Paragraph Rule .1601(a)(15) of this Chapter;
- (2) Perform the survey required by Subparagraph (a)(1) of this Rule again; and
- (3) Include in the report required by Subparagraph (d) of this Rule the results of the initial survey, a description of the modification made to comply with Subparagraph (b)(1) of this Paragraph, and the results of the second survey; or
- (4) Request and receive a license amendment authorizing radiation levels in unrestricted areas greater than those permitted by Paragraph Rule .1601(a)(15) of this Chapter.

(c) Radiation Measuring Equipment. The licensee shall have, when required, appropriate and operable radiation measuring equipment available for use and calibrated in accordance with Rule .1908 of this Section. Radiation measuring equipment includes, but is not limited to, dosimetry systems, survey instruments, and other radiation measuring devices used in planning, guiding, and administering radiation.

(d) Reports of External Beam Radiation Therapy Surveys and Measurements. The licensee for any therapeutic radiation machine subject to Rules within this Part shall furnish a copy of the records required in Subparagraphs (a) and (b) of this Rule to the Agency within 30 days following completion of the action that initiated the record requirement.

History Note: *Authority G.S. 104E-7;*
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