



NORTH DAKOTA
DEPARTMENT OF HEALTH

Division of Air Quality

RADIOACTIVE MATERIAL
LICENSING GUIDE

Application to Calibrate
Survey Instruments

Revised February 2, 2006

Guide for the Preparation of Survey Instrument Calibration Applications

This guide describes the information the Department staff needs to evaluate applications of persons who wish to calibrate their own radiation survey instruments or those of customers. The application must describe in detail the following items:

- A. The qualifications of the person who will supervise the instrument calibration operation. (This individual should have experience in general health physics, the handling of sealed sources, and the use and maintenance of the survey meters to be calibrated.)
- B. The type of survey meters to which the calibrations will be restricted. (The type of detector and energy range of the radiation to be detected should be specified.)
- C. A description of the source(s) of radiation to be used to produce the appropriate radiation fields and a drawing of the calibration arrangement, room, and adjacent areas.
- D. The range of field intensities over which meters will be calibrated. Sources of sufficient intensity must be available to provide adequate fields to calibrate all scales.

(Note: Instruments should be calibrated in fields that are approximately uniform throughout the detector volume. Hence, they should be calibrated at distances greater than about 10 times the thickness of the detector volume in the direction toward the source.)

- E. A description of the device or mechanism that will be used to expose the source to the meter and to shield the source when not in use, and a description of any shielding to be used to reduce the radiation exposure to the individuals performing the instrument calibration. Estimates of the highest fields expected in the operator's position and in the nearest unrestricted area should be provided.
- F. The method of accurately determining the fields at various distances from the source of radiation. If the inverse square law is used with a standard source, the standard source calibration should be traceable to a national standard.

(Note: The inverse square law will not apply if significant scattered radiation from shielding material contributes to the radiation fields along the calibration range. Hence, a calibrated condenser R-meter or other appropriate device would be required to determine such fields.)

If the isotope decay is a factor, this should be covered in the determination of fields. Sources appropriate for calibration are cesium-137, cobalt-60, and radium-226.

- G. The procedures to be followed in calibrating the survey meters.

(Note: All ranges must be calibrated at two points, near 30% and 70% full scale, except that those ranges where the full scale reading is equal to or less than 0.5 mR/hr may be calibrated at just one point, near mid-range. If the meter can not be adjusted to read within $\pm 20\%$ of any correct value, it must be repaired.)

- H. A copy of the calibration report to be provided to the customer and a sample of the tag to be placed on the meter to indicate when the meter was calibrated and by whom. The report should specify what radiation field strengths were used and what the instrument indicated in those fields. Also, describe the records of each calibration to be maintained for inspection by the Department. A copy of the customer's report will suffice for this.

AMENDMENT AND RENEWAL OF LICENSES

Applications 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, should be provided.

Licenses are normally issued for a period of five years. An application for license renewal filed thirty days or more before expiration assures that the existing license will not expire until the new application has been finally acted upon by the Department.

Renewal applications should contain complete and up-to-date information concerning the applicant's current program. References to previously submitted documents should be clear and specific and specify the document by date and indicate pertinent information by page and paragraph.

An application for amendment must be accompanied by the appropriate fee of \$140, as directed in Chapter 33-10-11 of the rules. An annual fee of \$650 shall be paid by January 1 or each year the license is active:

No fee is required for license renewal. Fee payments shall be made by check, draft, or money order made payable to the North Dakota Department of Health.

NOTE: For a combination license authorizing both instrument calibration services and leak test analysis services (for other licensed entities), the Amendment fee is \$150; and the Annual Fee \$870.