

Nuclear Measurements Corporation
Radiation Safety Program

HANDLING RADIOACTIVE MATERIAL

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HANDLING RADIOACTIVE MATERIAL

A. PURPOSE:

The purpose of this procedure is to provide guidance for the safe handling of radioactive material at Nuclear Measurements Corporation (NMC).

B. REFERENCES:

1. NRC Materials License 13-03341-02E.
2. NRC Materials License 13-03341-03.
3. 10CFR20, "Standards for Protection Against Radiation."
4. 10CFR19, "Notices, Instructions, and Reports to Workers; Inspections."

C. GENERAL:

1. NMC Procedures RP-100 through RP-108 outline the requirements of NMC's Radiation Safety Program. The RP-series procedures are structured to the limited use of radioactive material at the NMC Indianapolis facility. It is each individual's responsibility to adhere strictly to this and all radiation protection procedures. Any questions concerning the use of radioactive material should be directed to the RSO.
2. The Radiation Safety Officer (RSO) is responsible for the control and use of radioactive material at NMC.
3. The RSO is responsible for insuring that employees receive documented training (annual basis) concerning the proper handling of radioactive material. Training will consist of the review of all current NMC radiation protection procedures and will be documented by employees' signatures on the Radiation Protection Training Documentation Form (Attachment B to this procedure). All training records will be maintained by the RSO.
4. Any work with unsealed radioactive material must be performed by the RSO.

D. PROCEDURE:

1. In all cases, radioactive material shall be handled in a manner that will minimize personnel exposure:
 - a. Time. Minimize the amount of time spent using the radioactive source.
 - b. Distance. Maintain as great a distance as practical from the radioactive source.
 - c. Shielding. Make prudent use of the provided shielded containers (where applicable) enclosing the radioactive source; remove the source only when absolutely necessary and keep it stored in the shield when not in use.
2. The following precautions are to be followed when using the 10 millicurie Ra²²⁶ calibration needle:
 - a. Self-reading dosimeters (obtain from the RSO) will be worn by all individuals involved with the direct handling of the source. The Self-reading Dosimeter Log (Attachment A to this procedure) will be completed by each person wearing a self-reading dosimeter. This log is to be maintained by the RSO. All dosimeters are to be returned to the RSO after use.
 - b. The number of personnel in the area will be minimized to those absolutely necessary.
 - c. All nonessential personnel will be restricted from the area until the source has been placed back into its lead storage container.
 - d. A portable dose rate instrument will be available for use in the area.
 - e. The source will never be left unattended while it is not in the storage position.

3. Self-Reading Dosimeters:

A self-reading dosimeter is required for all individuals handling quantities of radioactive materials in excess of the limits specified in 10CFR20, Appendix C. All self-reading dosimeters are to be obtained from the

RSO before beginning work with the radioactive material, and are to be returned to the RSO on completion of work. The Self-Reading Dosimeter Log must be completed by each person wearing a self-reading dosimeter. This log is maintained by the RSO.

NOTE: All self-reading dosimeters must be in current calibration, as required by NMC procedure RP-108, Self-Reading Dosimeter Calibration.

4. For unsealed liquid sources:
 - a. Protective rubber gloves should be worn when handling unsealed liquid sources.
 - b. A GM survey meter should be available for use to monitor the area and personnel after source use is complete. Both the area and any personnel working with the radioactive material should be free of any contamination (no counts above background on the frisker). If contamination is suspected, immediately contact the RSO for assistance.
 - c. Use caution not to spill any liquid radioactive material. If a spill occurs, take action to contain it (paper towels, "Oilsorb," etc.) and immediately contact RSO for assistance.
5. Decontamination:
 - a. All decontamination will be performed under the direction of the RSO.
 - b. Personnel decontamination will normally be accomplished by washing the affected area with soap and water. A survey will be performed by the RSO after each decontamination to verify that all radioactivity has been washed away. (The large sink between the rest rooms in the assembly building will be used for all decontamination work.) A complete survey of the sink must be performed by the RSO and documented on a survey form after each personnel decontamination.
 - c. Area decontamination (counter tops or floors) will normally be accomplished by scrubbing the affected area with a detergent or bleach solution. A

survey will be performed by the RSO after contamination work is complete to verify all radioactivity has been washed away.

- d. All materials used for decontamination work must either be cleaned (as verified by a survey) or disposed of by the RSO.

NOTE: All personnel and area contamination incidents shall be completely documented (contamination levels and post-decontamination levels clearly noted on a survey sheet) by the RSO.

(Attachments A and B follow)

ATTACHMENT A

→ SELF-READING DOSIMETER LOG

Dosimeter Serial #	Name	Initial Reading	Final Reading	Net Reading	Date

ATTACHMENT B

→ RADIATION PROTECTION TRAINING DOCUMENTATION FORM

I have reviewed and I understand the NMC Radiation Protection Program, and I acknowledge that it is my responsibility to strictly adhere to all of its provisions.

Employee Signature

DateThis image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be from a notebook or a standard ruled sheet of paper. There is no handwriting or other markings on the page.