WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS ADVISORY

OPERATING AND EMERGENCY PROCEDURES FOR NUCLEAR GAUGES

1. THE FOLLOWING NOTICES MUST BE POSTED:

1.1 This Notice (700.04.23)

1.2 Nuclear Regulatory Commission (NRC) Form 3 (latest revision)

1.3 Regulatory Guide 8-13

1.4 NRC Regulations Part 21

1.5 NRC Appendix G Operating, Emergency, and Security Procedures

1.6 The notices must be posted in District Materials Laboratories, field offices, near storage areas, and all other areas where employees may be exposed to radiation from nuclear gauges. The notices must be located where employees can easily read them.

1.7 The NRC license, Parts 19 and 20 of the NRC regulations are available for all gauge users to read upon request. Copies are maintained at all District Materials Laboratories and Materials Control, Soils and Testing Division.

2. DOSIMETERS

2.1 All personnel who use, transport, or are near a nuclear gauge, must wear a dosimeter.

2.2 Only one employee may use a dosimeter during a three-month (quarterly) exposure period.

2.3 The dosimeter must not be stored near gauges, heat, strong light, or in a vehicle.

2.4 The dosimeters must be promptly changed when new dosimeters are received and the used dosimeters returned to Materials Control, Soils and Testing Division.

3. STORAGE OF NUCLEAR GAUGES

3.1 Nuclear gauges must not be stored in project field offices during work hours except as noted below.

3.1.1 A nuclear gauge may be placed in a field office during work hours for emergency charging. If employees are in the field office, the gauge must be at least 10 feet from designated work areas. The field office must be locked if personnel are not present.

3.1.2 Only one gauge may be in the field office for emergency charging at one time.

3.2 If a gauge is stored in the field office during non-working hours, the source handle must be locked and the gauge locked in the shipping case. The case must be chained and locked in place or locked in a closet and the field office locked. Other storage areas on the project must meet the same requirements.

3.2.1 There may be cases when it is necessary to charge a gauge during non-work hours. In this case, the source handle must be locked and the gauge chained in place.

3.3 When a gauge is stored on a project, this is only temporary storage and extreme care must be taken to insure that employees and the public are not exposed to unnecessary radiation. The central storage area in each District and at Materials Control, Soils and Testing Division are the only permanent designated storage areas. Gauges should be stored at these facilities at all times when feasible. During periods when a gauge is not being used on a project, it must be stored in the storage building.

3.4 If it is necessary to leave a gauge in a vehicle overnight, the gauge must be locked in place, the vehicle locked, and parked in a fenced Division of Highways facility.

3.5 All storage areas, whether permanent or temporary, must be periodically checked for radiation levels. The radiation levels must be near background levels for the area.

3.6 All storage areas must be checked and evaluated on a regular basis to insure that the area is secure and all reasonable precautions have been taken to prevent a gauge from being stolen.

4. TRANSPORTATION OF NUCLEAR GAUGES

4.1 A gauge must be transported with the source handle locked and the gauged locked in the shipping case.

4.2 A gauge must be placed as far from the driver and passengers as possible. Transporting a gauge in the cab of a pickup, for example, is strictly prohibited.

4.3 The shipping case must be secured and locked to the vehicle to prevent movement and provide security measures.

4.4 The cargo area and vehicle must be locked at all times when the vehicle is not directly attended. Transporting a gauge in the back of an open pickup or a vehicle that cannot be locked is strictly prohibited.

4.5 The shipping papers for a gauge must be visible in the driver's compartment and in reach of the driver. The shipping papers must be removed from the vehicle if a gauge is not being transported.

4.6 All necessary precautions must be taken to prevent a gauge from being lost or stolen while being transported.

5. USE OF THE NUCLEAR GAUGE

5.1 When the source is extended from the shielded position, keep the gauge between the user and the exposed source. Place the source in the test hole as fast as possible keeping the gauge at arms length.

5.2 While the gauge is counting, move a few feet from the gauge.

5.3 Never touch the lower portion of the source rod.

5.4 Never remove the source rod from the gauge.

5.5 A gauge must be under the constant surveillance of the user when removed from the transport vehicle or place of storage.

5.6 Keep all unauthorized personnel away from the gauge.

5.7 Never place a gauge in an area where it can be damaged, run over, etc.

5.8 The gauge source handle must be locked when the gauge is not being used for testing.

6. CARE OF NUCLEAR GAUGES

6.1 Never allow the gauge to get wet.

6.2 Never store a gauge in a damp area.

6.3 Always keep the gauge clean. Periodically clean the shutter block and cavity in the bottom of the gauge. The source rod must be in the storage position. Always work at arms length during all cleaning operations.

6.4 It is the users responsibility to prevent a gauge from being damaged or abused.

7. TRAINING REQUIREMENTS

7.1 All gauge users must be properly trained in the use of nuclear gauges and in radiation safety before being allowed to use gauges without direct supervision.

7.2 All nuclear gauge users must have hazardous materials training at least every three years.

7.3 The training requirements and documentation necessary to verify training is specified in the NRC license. These requirements must be strictly enforced.

8. EMERGENCY PROCEDURES

8.1 In case of gauge is physically damaged, the following procedures are to be followed:

(a) Rope off the area and keep all personnel a minimum of

50 feet from the gauge.

(b) Do not touch, move, or disturb the gauge.

(c) Make sure someone qualified remains outside the roped-off area at all times to insure that the gauge isn't touched or moved.

(d) Contact the District personnel in charge of the gauges and radiation safety.

Name: Telephone Number:

Name: Telephone Number:

(e) District personnel shall immediately contact the Radiation Safety Officer at Materials Control, Soils and Testing Division.

8.2 If a gauge is lost or stolen, immediately notify the personnel listed above.

9. CONTRACTORS' GAUGES

9.1 Division personnel shall follow the safety requirements contained herein and any other appropriate safety procedures when near a contractor's gauge.

9.2 Contractors are licensed by the NRC to possess and use their equipment. It is their responsibility to use the equipment in a safe manner.

Michael Mance Digitally signed by Michael Mance
Date: 2025.08.11 09:54:20 -04'00'

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MP 700.04.23 Steward – Materials Control Section