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MEDICAL SERVICES

RADIATION SAFETY

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\* This regulation supersedes WVMR (Army) 40-14, dtd 1 October 1982

**SECTION I**  
**GENERAL**

**1-1. REFERENCES:**

- a. AR 40-14, Control and Recording Procedures for Occupational Exposure to Ionizing Radiation.
- b. AR 385-11, Ionizing Radiation Protection (Licensing, Control, Transportation, Disposal and Radiation Safety).
- c. AR/NGR 190-51, Security of Army Property at Unit and Installation Level.
- d. AR 385-40, Safety, Accident Reporting and Records.
- e. AR 700-64, Radioactive Commodities in the DOD Supply System (not available to units).
- f. AR/NGR 710-2, Material Management for Using Units, Support Units and installations.
- g. AR/NGR 190-11, Physical Security of Weapons, Ammunitions, Explosives and Other Federal Property.
- h. WVMR(ARMY) 600-55, Driver/Operator Selection, Training, Testing and Licensing.
- i. SB 11-206 Film badge (Photosimetry) Supply and Service for Technical Radiation Exposure Control.
- j. TB 385-103, Safety Procedures for Tester, Density and Moisture (Soil and Asphalt), Nuclear Method.
- k. TM 38-750, The Army Maintenance Management system.
- l. FM 35-30, Motor Transport Operations.
- m. 29 CFR, Part 1910.
- n. 10 CFR, Part 20.
- o. 20 CFR, Part 21.

**1-2. PURPOSE:** The purpose of this regulation is to establish policy and procedures for management of radioactive commodities (as defined herein) within the West Virginia Army National Guard.

1-3. SCOPE: This regulation provides general guidance for management of radioactive commodities. Further supplementation in the form of Standing Operating Procedures (SOP) will be required. Each battalion level command and will initiate an SOP upon receipt of a nuclear commodity (See paragraph 1-6b below.)

1-4. APPLICABILITY: This regulation is applicable to all units/activities having possession of a radioactive commodity. Medical units are excluded due to complete guidance being furnished in medical directives.

1-5. DEFINITIONS:

a. Local Radiation Protection Officer (LRPO): An individual designated (in writing) by the command who is capable of performing the duties outlined or implied herein and instructing personnel, as required, in all matters pertaining to radiation safety. The word "officer" is not intended to denote commissioned status. However, all LRPO's will be in grade E-6 or above.

b. Alternate Radiation Protection Officer (ALRPO): An individual designated (in writing) to assist the LRPO.

c. Equipment Operator(s): As used herein are those individuals assigned the responsibility for control or use of any device containing a radioactive commodity.

d. Radioactive Commodity: For the purpose of this regulation, a radioactive commodity is any commodity containing radioactive material in excess of the following microcurie amounts:

Americium 241.....	0.01
Plutonium 239.....	0.01
Radium 226.....	0.01
Uranium 233, 234, 235.....	0.01
Mixtures of Alpha Emitters of unknown composition.....	0.01
Radioactive aerals not listed above.....	0.1

e. Device(s): As used herein, refers to any instrument, tool, test set which contains a radioactive commodity.

f. Radiation Area: An area in which an individual could receive a radiation dose of five millirem or more in any one hour or a radiation dose of 100 millirem or more in five consecutive days. For practical purposes, a radiation area shall be considered to be any area in which the radiation intensity is greater than two milliroentgen per hour.

g. **Licensee:** The Commodity Command or governmental agency licensed by the Nuclear Regulatory Commission to procure, issue and manage a radioactive commodity. (US Army Tank - Automotive Material Readiness Command (USATARCOM).) See "Table 3-2. AR 385-11.

h. **Accident/Incident:** Paragraph 4-7, AR 385-11 clearly defines accidents and incidents. Each accident/incident will be investigated and reported in accordance with Section III, this regulation.

#### 1-6. **Responsibilities:**

a. The Occupational Health Nurse, WVARNG, is designated as having staff responsibility for implementation, management and supervision of the provisions of this and all referenced directives. The Occupational Health Nurse and commanders of using units are responsible to the Licensee for proper control, use and management of the radioactive commodity (device). The Occupational Health Nurse, WVARNG, is designated the Radiation Protection Officer (RPO) for the West Virginia Army National Guard.

b. Battalion level commands will (upon receipt of a radioactive commodity) supplement this directive with Standing Operating Procedures written expressly for the particular radioactive commodity assigned their unit(s). This SOP will condense referenced regulations and this directive into clear, concise instructions for operators and personnel coming in day-to-day contact with the device. SOP's will provide for trained operators, ALRPO's and LRPO's at all times. Based on Expiration of Term of Service (ETS) or other anticipated vacancies training of replacements will receive priority. In case a trained operator/LRPO/ALRPO is not in the unit, the next higher level of command will be tasked with the duties. A copy of SOP will be forwarded to this headquarters, ATTN: WVAR-PA-S. Commanders will appoint on orders the LRPO and comply with 2-5(e) TB 385-103.

c. Local Radiation Protection Officers (LRPO) will have all pertinent regulations and directives and will advise the commander in all matters pertaining to radiation safety. In addition, the LRPO will train operators and users of radioactive commodities in radiation safety, accident/incident reporting and emergency procedures. The LRPO will conduct surveys (see Section III, this regulation) and supervise record keeping and reporting procedures. The LRPO will perform leak tests as required.

d. Alternate Local Radiation Protection Officer (ALRPO) will assist the LRPO as required.

1-7. **Amendments and/or Changes:** Specific guidance herein pertaining to the Tester, Density and Moisture (Soil and Asphalt), Nuclear Method, will be followed for other radioactive commodities where applicable. For other radioactive commodities, units/activities will use the TM's, TB's, manufacturers booklets, etc., pertinent to the specific item as well as the AGO-WV, referenced directives.

When density of other radioactive commodities warrant, this regulation will be amended or changed to include the specific item(s). (See Table 3-2, AR 385-11.)

**SECTION II**  
**RECEIPT STORAGE, TRANSPORTATION AND USE OF RADIOACTIVE DEVICES**

**2-1. Receipt:**

a. When specifically directed by Army directives (Reference TB 385-103) only, the commander of the unit will receipt for the device. No transfer of the item will be made (even within the command) without prior approval of the Licensee (Reference paragraph 2-5(h), TB 385-103).

b. All radioactive devices will be considered sensitive and pilferable items. (Reference paragraph 2-12k and 3-13, AR 710-2 and NOR 710-2.)

**2-2. Storage:**

a. Storage of radioactive devices will be in a controlled, limited access area to minimize personnel exposure. AR 700-64 defines a controlled area as, "A clearly defined area in which the exposure of personnel to radiation is under supervision of an individual in charge of radiation protection." Paragraph 3-2, this regulation, will clarify the supervisor's role in monitoring the storage area.

b. TB 385-103, Section IV, outlines minimum storage area requirements. In addition to those requirements, paragraph 2-10, AR/NGR 190-11 and AR/NGR 19-51, paragraph 2-6, requirements will be met.

c. Commanders will designate (in writing) those individuals having access to the storage area (i.e., BSO, Supply SGT, AO, LRPO, ALRPO, operator). All personnel will comply with the personnel monitoring procedures found in Section III, this regulation.

**2-3. Transportation:**

a. Transportation directed by US Army Tank-Automotive Readiness Command (USATARCOM) or other Licensees of radioactive commodities will be in accordance with Licensee's directives and AR 385-11, Chapter 4.

b. Transportation of radioactive devices to and from job or training sites will be in accordance with Chapter 216, AR 55-355. Completion of DD Form 626 will be in accordance with FM 55-30, para 10-8 thru 10-13 and will be accomplished by a qualified organizational maintenance mechanic or supervisor. This form will be completed not more than 24 hours prior to time of movement. A complete preventive maintenance check will be performed in accordance with applicable Technical Manual prior to movement. DA Form 2404 will be properly completed by the operator and in his possession along with DD Form 626.

c. Vehicle operators under age 21 will not be assigned to transport radioactive devices. As a minimum, each movement will be accompanied (in the vehicle) by a trained operator for the device being transported. Special instructions (DD Form 8-36) prepared by the LRPO (see paragraph 1-6b, this regulation) and FM 55-30, paragraph 10-8 thru 10-13 will be in possession of the operator for the device. Under no circumstances will vehicles transporting radioactive devices be left unattended.

#### **2-4. Use of Radioactive Devices:**

a. Only trained and licensed operators will be permitted to use radioactive devices. Training will be in accordance with Licensee directives, usually an MOS producing service school or special course (New Equipment Training (NET), etc.). LRPO's will certify to safety training on DA Form 348 where proper documentation of all training will be reflected.

b. Radioactive devices such as the Tester, Density and Moisture (Soil and Asphalt), Nuclear Method are required to be dispatched for use on DA Form 2401, Organizational Control Record for Equipment.

c. Radioactive equipment operators and first line supervisors will insure minimum personnel exposure while equipment is in use. In addition to Nuclear Radiation Warning Signs required by AR 385-11 and AR 385-30 and other pertinent directives, constant surveillance of the work area/job site will be made to preclude exposure of unauthorized personnel.

### **SECTION III RECORDS AND REPORTS**

#### **3-1. General:**

a. The Nuclear Regulatory Commission (NRC) requires strict controls on all radioactive commodities (as defined in paragraph 1-5d, this regulation) and comprehensive record keeping and reporting. The Licensee is responsible to NRC (AR 700-64) for management and supervision of radioactive commodities and devices to include monitoring and processing records and reports. Units/activities in possession of a radioactive commodity will rigidly adhere to records and reporting procedures as directed herein.

b. Staff responsibility for monitoring record keeping and reporting procedures for the WVARNG will rest with the Occupational Health Nurse, Radiation Protection Officer (RPO). Each command (battalion and higher) will inspect all records and reports and comment on same during each formal inspection (i.e., command inspection) In addition, informal inspections should be made by commanders and members of their staff on frequent and recurring basis.

c. Record keeping and data posting must become a routine matter in order or timely and accurate reports to be forwarded as required. Commanders will insure compliance by assignment of specific tasks (see paragraph 1-6b, this regulation).

**3-2. Personnel Records and Reports:**

a. All personnel using or coming in close contact with a radioactive commodity on a frequent and recurring basis will comply with monitoring, record keeping and reporting procedures. Occasionally exposed individuals, as defined in AR 700-64, will only comply with monitoring procedures. AR 700-64 defines occasionally exposed individuals as "An individual whose work is not normally performed in a controlled area and whose duties do not normally involve exposure to ionizing radiation; however, the individual may have reason to enter a controlled area in the performance of his/her duties (maintenance workers, messengers, deliver workers, etc.). The exposure to ionizing radiation shall not be in excess of that allowed to any individual in the population at large." The authorized entrant will closely monitor the ionizing radiation by use of the IM 9E/PD Radiacmeter, NSN 6665-00-243-8199, and preclude any undue exposure to the occasionally exposed individual. Other examples of occasionally exposed individuals are persons conducting inventories and security/safety/command inspections. Personnel having monthly frequent exposures will not be considered occasionally exposed.

b. Record of Entrants to Controlled Areas: A locally devised form (see Appendix I) will be posted on or near the access door to the controlled area for the purpose of recording all entrants (authorized personnel and occasionally exposed). This form will show date of entry, time in, time out name and grade, purpose of visit and radiation survey results. At least bi-weekly the supervisor of the installation/armory will visit the controlled area and conduct a safety/security survey. Proper annotation on the record of entrants to controlled area form will record these visits.

c. Photodosimetry Report (DA Form 3484): Supply Bulletin 11-206 outlines procedures for requesting, processing and use of film badges in monitoring ionizing exposure. DA Form 3484 will be used as directed therein for the purpose of control, transmittal and documentation of film badges and exposure readings. Individuals other than occasionally exposed individuals are required to have film badges. Compliance with SB 11-206 will be closely monitored by all supervisors/commanders and LROP's.

d. Record of Occupational Exposure to Ionizing Radiation (DD Form 1141): AR 40-14 requires the use of DD Form 1141 to record the amounts of exposure an individual has received. The postings to this form will be taken from the DA Form 3484 or in some cases from radiacmeter readings. In case there should ever be a conflict between radiacmeter readings and film badge readings, the amounts recorded on DA Form 3484 will apply. Custodians of medical Records (or individuals designated by SOP) will consolidate DD Form 1141 information upon request as required by USATARCOM and NRC. Postings must be timely and accurate and subject to review (inspection) at all times. This is a permanent record and will be maintained in the individual's medical records folder.

e. **Film Badge Record:** Film badges will be ordered in accordance with SB 11-206. Each unit will maintain a roster to show the list of personnel film badge issues according to serial/control number. Film badges (control number) will not be transferred between or used by individuals other than whom assigned (SB 11-206).

f. **Quarterly Surveys:** NRC requires each Licensee to closely monitor and furnish reports on radioactive commodities in use in the field. For the Tester, Density and Moisture (Soil and Asphalt) Nuclear Method. USATARCOM in turn requires a Quarterly Survey. Section VI, TB 385-103 establishes the minimum requirements for this survey. Included as a part of the survey a duplicate copy (photo copy) of record of entrants to controlled area will be used to attest the various actions that have occurred. The record of entrants to controlled area will record the results of instrument (AN/PDR-27) surveys conducted by the IROP on his visits. All other visits recorded thereon (i.e.. CAO/OIC. commander, equipment operator, BSO. UA, security and command inspection personnel) will insure compliance with Items a through i, paragraph 6-1, Section VI, TB 385-103. Initial survey/storage movement survey reports will be forwarded direct to USATARCOH, Warren, Michigan 48090. Copies will be forwarded to this headquarters, ATTN: WVAR-PA-S. A letter of transmittal (Appendix II) will accompany the report. Quarterly surveys will be recorded locally.


g. **Semi-Annual Wipe Tests:** Paragraph 6-3, Section VI, TB 385-103, explains the wipe test procedure. Materials for performing the test are normally overpacked with radioactive devices or may be obtained from Lexington Blue Grass Army Depot (LBAD) (SB 11-206). Semi-annual tests will be performed and within 10 days after receipt of results from LBAD a report will be forwarded to USATARCOM. A letter of transmittal will accompany the report (Appendix III) and a copy will be provided this headquarters, ATTN: WVAR-PA-S.

h. **Annual and Other Reports:** Annual reports required for wholebody exposure reports, etc., will be as requested by this headquarters. Any loss or gain of a radioactive commodity (temporary or otherwise) in the unit/activity will be immediately reported to this headquarters, ATTN: WVAR-PA-S.

i. **Accident/Incident Reports:** All accidents/incidents will be reported by telephone to this headquarters within 12 hours. During normal duty hours the report will be called in to the safety office. A follow-up investigation and written report in accordance with Chapter 2, AR 385-11 will be forwarded to this headquarters, ATTN: WVAR-PA-S within five working days of the accident/incident.

3-3. Retention of Records and Reports: Copies of all records will remain on file in the unit for a period of not less than one year (DD Form 1141 is a permanent record). These records will be available for review/inspection at all times.

FOR THE GOVERNOR:

  
JOSEPH J. SKAFF  
Major General  
The Adjutant General



APPENDIX B

UNIT LETTERHEAD

SUBJECT: Transmittal of Initial/Storage Movement Radiation Survey

Commander  
US Army Tank-Automotive Readiness Command  
ATTN: DRSTA-CZ  
Warren, Michigan 48090

1. Transmitted herewith is Initial/Storage Movement Survey in accordance with paragraph 2-6, Section II, TB 385-103. Surveys, inspections and security checks were made as indicated on attached from.
2. No other accident/incident occurred.

UNIT COMMANDER

CF:  
TAG-WV  
ATTN: WVAR-PA-S

APPENDIX C

UNIT LETTERHEAD

SUBJECT: Transmittal of Results of Semi-annual Wipe Tests

Commander  
US Army Tank-Automotive Readiness Command  
ATTN: DRSTA-CZ  
Warren, Michigan 48090

1. Transmitted herewith are results of semi-annual wipe tests as received from Lexington-Blue Grass Army Depot.
2. No other accident/incidents occurred.

UNIT COMMANDER

CF:  
TAG-WV  
ATTN: WVAR-PA-S

## APPENDIX D

### M8A1 AUTOMATIC CHEMICAL AGENT ALARM

1. **Purpose.** The contents of this Appendix will provide policy, procedures and information to ensure proper control, storage and transportation of the M8A1 Automatic Chemical Agent Alarm.

2. **Scope.** This Appendix applies to all personnel and activities possessing, storing or transporting the M8A1 Automatic Chemical Agent Alarm within the West Virginia Army National Guard.

3. **References.**

- a. AR 385-11, Ionizing Radiation Protection, May80
- b. AR 700-64, Radioactive Commodities in DOD Supply System, April 85
- c. NGR 385-11, Ionizing Radiation Protection, Mar87
- d. TM 3-6665-312-12&P, Operator's and Organization Maintenance Manual for M8A1 Automatic Chemical Agent Alarm, Mar85
- e. TM 3-6665-312-30&P, Direct Support Maintenance Manual for M8A1 Automatic Chemical Agent Alarm, Mar85
- f. TM 3-6665-329-12&P, Operator Instruction and Direct Support Maintenance Instructions, M140 Automatic Chemical Agent Alarm Test Set, Mar85

4. **Responsibilities.**

a. **The State Radiation Protection Officer:**

(1) Maintains a listing of the locations and number of all M8A1 Automatic Chemical Agent Alarms within the West Virginia Army National Guard.

(2) Provides guidance on the proper storage of the M8A1 Alarm.

(3) Ensures that an annual inspection of each M8A1 Alarm storage location and the Combined Support Maintenance Shop (CSMS) is accomplished.

Appendix D, cont'd

**b. The State Surface Maintenance Officer:**

(1) Ensure wipe tests of the M8A1, as directed by the Commander, U.S. Army Armament, Munitions and Chemical Command (AMCCOM) are conducted, as required, at the CSMS.

(2) Ensure the availability, at all times, of at least one active calibrated AN/PDR-56F, AN/PDR-60 Radiac Set or equivalent.

**c. The U.S. Property and Fiscal Officer:**

(1) Conduct an inventory of all M8A1 Automatic Chemical Agent Alarms within the West Virginia Army National Guard. This inventory will include:

(a) Serial Number of the M8A1 Alarm.

(b) Serial Number of the M43A1 Detector Cell.

(c) Possessing Unit.

(2) Provide a designated storage area for all M8A1 Alarms awaiting distribution within the West Virginia Army National Guard and those M8A1 Alarms being returned to the appropriate Army depot.

**d. Unit Commander:**

(1) Ensures only trained personnel utilize the M8A1 Alarm. All personnel who operate or store the M8A1 Alarm **MUST** view the M8A1 training videotapes. The M8A1 training videotapes (TVT 3-64, TVT 3-65 and TVT 3-66) are available from supporting Training and Audiovisual Support Office (TASO).

(2) Ensures that adequate resources are available in the event of an accident involving the M8A1 Alarm.

(3) Ensures the M8A1 Alarm is utilized, stored and transported in accordance with applicable regulations.

**5. Procedures.**

**a. Use:**

(1) Be utilized by **ONLY** trained personnel.

(2) **NEVER** be operated in a moving vehicle.

(3) **NOT BE** operated indoors without an outlet filter attached.

(4) **NEVER** have the M43A1 detector cell or pump assembly removed or repaired **EXCEPT** by authorized CSMS personnel.

**b. Storage:**

(1) Be stored in a marked, controlled Radioactive Materials storage area. Each storage location will be posted as "CAUTION - RADIOACTIVE MATERIALS" in accordance with AR 385-30.

(2) **NEVER** be stored with explosives, flammables, food or photographic film.

**c. Transportation and Disposal:**

(1) Be transported in accordance with Title 49, Code of Federal Regulations, Part 173.422 as RADIOACTIVE MATERIALS, INSTRUMENTS and ARTICLES.

(2) Be disposed of in accordance with direction provided by the Commander, AMCCOM.

**d. Emergencies:** In the event of an accident/incident involving the M8A1 Automatic Chemical Agent Alarm, immediately contact the State Radiation Protection Officer/State Safety Office at AV 366-6471/6411 or commercial 347-6471/6411.