DEPARTMENT OF THE ARMY
LETTERKENNY ARMY DEPOT
CHAMBERSBURG, PENNSYLVANIA 17201

SDSLE-AS 21 September 1978

SUBJECT: Disposal of Test Sample, Serial Number 558

Commander
US Army Communications and Electronics
Materiel Readiness Command
ATTN: DRSEL-SF-H
Fort Monmouth, New Jersey 07703

1. Reference is made to TM3-6665-264-10, subject, Operator's Manual Radioactive Test Sample: Krypton 85, Gamma, MX7338/PDR-27R, copy attached.

2. During periodic six month inventory on 15 August 1978, test sample serial number 558, was missing. Review of records and a physical survey by Radiological Protection Officer (RPO) and alternate RPO indicated that RADIAC set (including test sample) was disposed of as aluminum scrap.

3. Test sample was a component part of an inoperative ANPDR-27E, RADIAC set, which was used for at least the last five years for spare parts to keep serviceable sets operational. Calibration Division, SDSLE-QC, forwarded set to Defense Property Disposal Office, DPDO-XPD on 2 Jun 78, designated as "unserviceable - cannot repair; cannot get parts for item". Sample was inadvertently disposed of with aluminum container as scrap on 21 Jun 78. An intensive search of aluminum scrap was conducted by DPDO-XPD. Test sample was not recovered.

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4. This was the only set used for spare parts. Currently all RADIAC sets are controlled by property book assignment. Procedures for disposal of such items have been reviewed and re-emphasized with persons involved.

FOR THE COMMANDER:

Robert D. Hamsher

ROBERT D. HAMSHER
Radiological Protection Officer

1 Incl
as

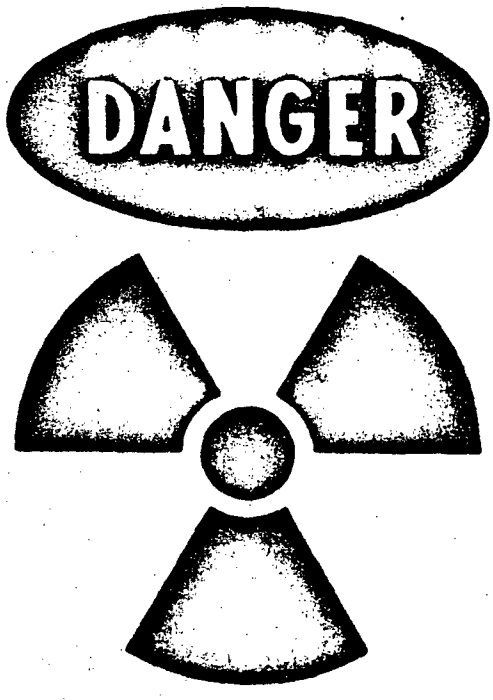
CF:
Cdr, DRCSF-P

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL
RADIOACTIVE TEST SAMPLE, KRYPTON 85, GAMMA
MX-7338/PDR-27R

Headquarters, Department of the Army, Washington, DC
7 February 1975

WARNING
RADIATION HAZARD



STD-RW-1

KRYPTON 85

The MX-7338/PDR-27R contains 5,000 microcuries (uc) of Krypton 85.

Be extremely careful while using this equipment and follow safe procedures in handling, storage, and disposal contained in this manual.

*This manual supersedes TM 3-6665-264-10, 3 February 1969.

SAFETY PRECAUTIONS

When handling Radioactive Test Sample, Krypton 85, Gamma MX-7338/PDR-27R, avoid prolonged exposure to the radiation; do not unchain the test sample from the carrying case except for disposal purposes.

Handle the MX-7338/PDR-27R by the flat (inactive) end only. Protect stored radioactive test sample against unauthorized removal.

BIOLOGICAL SAFETY NOTICE

Personnel working in high radiation dose rate areas must be extremely careful to prevent bodily injury. While the radiation from radioactive substances cannot be felt or seen, prolonged or intensive exposure may result in serious injury. One tenth of a roentgen (100 milliroentgens) per 5-day (40-hour) week is considered to be the maximum dose rate of such radiation to which the body can be exposed continuously without serious damage.

Section I. GENERAL

1. Scope

This manual contains a description of Radioactive Test Sample, Krypton 85, Gamma, MX-7338/PDR-27R (radioactive test sample) and information on its use; instructions for handling, storage, and disposing of damaged or unwanted test samples; and actions to be taken in emergency situations.

2. Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/NAVSUPINST 4030.29/AFR 71-13/MCO P4030.29A, and DSAR 4145.8.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33/AFM 75-18/MCO P4610.19A, and DSAR 4500.15.

4. Reporting of Errors

Reporting of errors, omissions, and recommendations for improving this manual by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-PSC, Fort Monmouth, NJ 07703.

5. Use

The radioactive test sample is used as a check source to determine if the electrical circuit of an AN/PDR-27( ) radiac set is functioning properly. Detailed instructions for using the radioactive test sample are given in the technical manuals covering Radiac Set AN/PDR-27( ).

NOTE

The MX-7338/PDR-27R replaces the MX-1083( )/PDR-27 radioactive test samples and is used the same way.

6. Authorization for Issue.

Radioactive Test Sample, Krypton 85, Gamma MX-7338/PDR-27R is issued throughout the Army without a specific license being required by the user. This action is made possible by statements and conditions set forth in an Atomic Energy Commission Byproduct Material License issued to Department of the Army, ATTN: AMSEL-SF-H, US Army Electronics Command, Fort Monmouth, NJ 07703.

7. Supervision and Control

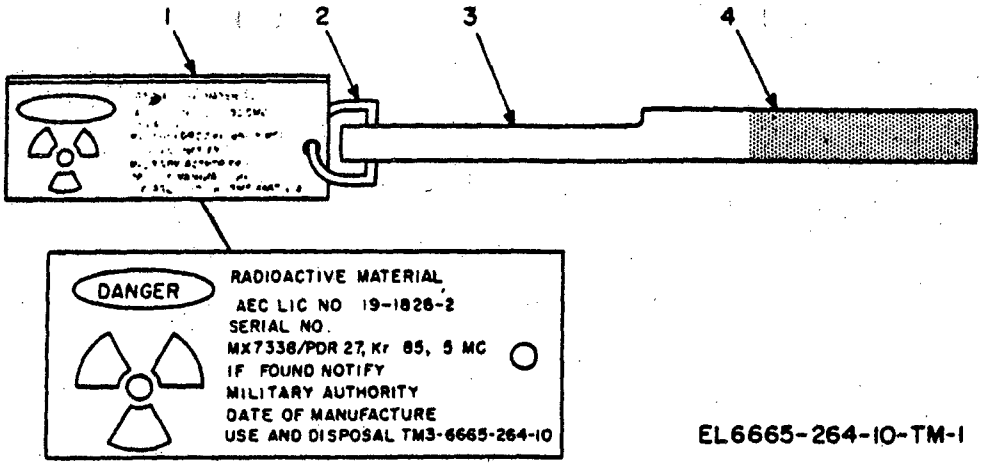
a. The handling, storage, transfer, use and disposal of the radioactive test samples should be under the control of the installation or activity (local) radiological protection officer (RPO), who will assure the radiological safety of all such functions. The items must be handled, used, and stored only by authorized personnel in established, properly placarded radiological controlled areas. Radioactive test samples must be secure against authorized use or removal.

b. Normally each MX-7338/PDR-27R will be chained to the radiac set case and stored in the space provided within the case. The radiac sets will then be stored in a secure, properly placarded radiological control area as determined by the responsible radiological protection officer. To ship the radiac sets off post for calibration, the RPO may authorize temporary removal of the radioactive test samples if they are stored during that period in a suitable, adequately shielded and labeled container within a secure placarded radiological controlled area, then rechained to the radiac set case upon its return from the calibration facility and ready for use. This procedure will permit transportation of the radiac sets as non-radioactive shipments. An exception to this procedure can be made when a number of radiac sets and radioactive test samples are possessed by one organization for training purposes. In this case, the radioactive test samples will be stored in a suitable, adequately shielded and labeled container within a secure, placarded radiological controlled area rather than being chained to the radiac set cases. Use and accountability of the MX-7338/PDR-27R will be controlled by the instructor or similarly positioned person or his specifically designated alternate under the guidance of the local RPO. In all cases, adequate control and personnel radiation protection must be established.

Section II. DESCRIPTION AND DATA

8. Description

The MX-7338/PDR-27R (fig. 1) is an aluminum wand approximately ⅜-inch in diameter and 5 inches in length. A sealed radioactive source containing approximately 5 millicuries of Krypton 85 (Kr85) is sealed in the cylindrical or active end (4) of the wand; the active end is painted purple. an identification tag (1) is attached to the flattened or inactive end (3) of the wand by a D-ring (2); the inactive end is marked MX-7338/PDR-27R. The D-ring also is used to attach the radioactive test sample to a chain in the carrying case of Radiac Set AN/PDR-27( ). While not in use, the MX-7338/PDR-27R is stored in a well in the carrying case.



1 Identification tag
2 D-ring
3 Inactive end
4 Active end

Figure 1. MX-7338/PDR Gamma, Krypton 85, radioactive test sample.

9. Tabulated Data

Type of radiation ..... Gamma.
Quantity (approx) ..... 5 millicuries.
Radioactive material ..... Kr85.
Half life ..... 10 years.

Section III. INSPECTION FOR LEAKS

10. General

If the MX-7338/PDR-27R develops a leak because of gross damage or deterioration, Krypton 85 will dissipate into the air without causing surface contamination.

11. Inspection

Inspect the MX-7338/PDR-27R when issued and each time thereafter when the sample is used to make sure that it is not damaged or deteriorated and that the meter reading on the 50 MR/hr scale of the AN/PDR-27( ) is at least 10 MR/hr. If the meter reading is below 10 MR/hr on the 50 MR/hr scale, double check the functioning of the instrument without the radioactive test sample, using the procedure given in TM 11-6665-230-15. If the double check shows the MX-7338/PDR-27R to be defective, open the D-ring (2, fig. 1) and remove the test sample from the chain. Dispose of the MX-7338/PDR-27R and identification tag as directed in paragraphs 14 or 15, whichever is applicable.

Section IV. STORAGE

12. General

The MX-7338/PDR-27R is numbered serially to permit control of supply and issue. They are not individually controlled items as defined in AR 725-1. Accountability for radioactive test samples must be maintained by serial number only. (Loss of a radioactive test sample must be reported as described in paragraph 16c and an unwanted or unserviceable test sample must be disposed of through a radioactive material disposal facility as described in paragraphs 14 and 15.) Protect stored radioactive test samples against unauthorized removal.

13. Bulk Storage

Bulk storage is authorized only at depots designated by the National Inventory Control Point. Designated depots will be equipped with storage and disposal facilities for radioactive materials. The depots will be supported by a health physicist or a qualified radiation protection officer.

Section V. DISPOSITION OF UNWANTED OR UNSERVICEABLE RADIOACTIVE TEST SAMPLES

14. Disposition of Test Samples in CONUS

In CONUS, turn in unwanted or unserviceable MX-7338/PDR-27R to a radioactive material disposal facility in accordance with AR 755-15. Notify Commander, US Army Electronics Command, ATTN: AMSEL-SF-H, Fort Monmouth, NJ 07703 of the completed action. Notification is to include the serial numbers of the MX-7338/PDR-27 disposed.

NOTE

Although the radioactivity is greater than 10 MR/hr when checked with an AN/PDR-27( ), the radioactive test sample is considered unserviceable is the identification tag is damaged, unreadable, or missing, or if the aluminum wand is crushed or corroded.

15. Disposition of Test Samples Overseas

Disposition of radioactive test samples overseas will be in accordance with the procedures established by the responsible theater commander.

Section VI. EMERGENCY SITUATIONS AND ACTIONS TO BE TAKEN

16. Loss of Test Sample

a. Attempt to recover the test sample.

(1) Review records to determine the responsible individual.

(2) Make a physical survey of the area.

b. If the radioactive test sample is recovered, revise procedures as necessary to prevent a recurrence.

c. If the radioactive test sample is not recovered, report the loss within 25 days through command channels to the major command radioactive material control point and state the serial number of the missing MX-7338/PDR-27R, the circumstances involved, and the procedures taken to prevent recurrence. The radioactive material control point will forward this notification to Commander, US Army Electronics Command, ATTN: AMSEL-SF-H, Fort Monmouth, NJ 07703.

17. Internal Exposure of Personnel

Internal exposure of personnel resulting from ingestion, inhalation, or absorption of radioactive material generally associated with damaged or leaking sources does not apply to the MX-7338/PDR-27R because Krypton 85 is an inert gas.

18. External Overexposure of Personnel

a. External overexposure of personnel can occur if the test sample is in direct contact with the skin for prolong periods.

b. The following actions are required if a known or suspected overexposure occurs:

(1) Seek advice from the medical officer.

(2) If the external exposure is suspected, calculate the exposure by multiplying the length of exposure (in hours) by 10 MR/hr and annotate DD Form 1141 (Record of Occupational exposure to Ionizing Radiation).

(3) Correct procedures to prevent a recurrence.

(4) Notify responsible commands and Commander, US Army Electronics Command, ATTN: AMSEL-SF-H, Fort Monmouth, NJ 07703.

APPENDIX
REFERENCES

AR 725-1	Special Authorization and Procedures for Issues, Sales, and Loans.
AR 755-15	Disposal of Unwanted Radioactive Material .
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8 and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	US Army Index of Modification Work Orders.
TM 11-6665-230-15	Organizational, DS, GS, and Depot Maintenance Manual (Including Organizational Maintenance Repair Parts and Special Tool Lists): Radiac Set, AN/PDR-27R.
TM 38-750	The Army Maintenance Management System (TAMMS).

By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

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USAADS (2)
USAFAS (2)
USAARMS (2)
USAIS (2)
USAES (2)
USA Dep (2)
Sig Sec USA Dep (2)
Sig Dep (2)
AD (1) except
  SAAD (30)
  LBAD (14)
  TOAD (14)
  SHAD (2)
  NAAD (2)
  SVAD (2)
ATS (1)
APG (5)
DPG (5)
WBAMC (1)
WRAMC (1)
USAIC (2)
USAPC (2)
POE (1)
USATTC (1)
Arsenals (2) except
  Edgewood (30)
MAAG (1)
USARMIS (1)
USACRREL (2)
USAARMC (2)
USAERDAA (1)
USAERDAW (1)
Sig FLDMS (1)
EAMTMTS (1)
WAMTMTS (1)
MOTBA (1)
MOTBY (1)
MOTKI (1)
MOTSU (1)
Units org under fol TOE:
  5-500 (1)
  11-500(AA-AC) (1)

ARNG & USAR: None.

For explanation of abbreviations used, see AR 310-50.

GPO 921-020