

DEPARTMENT OF THE ARMY SUPPLY BULLETIN

**STORAGE SERVICEABILITY STANDARDS
FOR ARRCOM MATERIEL
RADIAC CALIBRATORS,
RADIAC SETS,
RADIOACTIVE
TEST SAMPLES
AND RADIOACTIVE
SOURCE SETS**

HEADQUARTERS, DEPARTMENT OF THE ARMY

18 APRIL 1983

CHANGE

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DEPARTMENT OF THE ARMY
WASHINGTON, DC 3 June 1985

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**Storage Serviceability Standards for AMCCOM Materiel
RADIAC CALIBRATORS, RADIAC SETS, RADIOACTIVE TEST SAMPLES
AND RADIOACTIVE SOURCE SETS**

SB 740-94-10, 18 April 1983, is changed as follows:

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SUPPLY BULLETIN

No. 740-94-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 18 April 1983

**Storage Serviceability Standards
For ARRCOM Materiel
RADIAC CALIBRATORS, RADIAC SETS, RADIOACTIVE
TEST SAMPLES, AND RADIOACTIVE SOURCE SETS**

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*This bulletin supersedes SB 740-94-10, 16 November 1979.

SECTION I

INTRODUCTION

1-1. Purpose. This supply bulletin provides the basic information and detailed inspection procedures required to determine the serviceability status of Radiac Calibrators, Radiac Sets, Radioactive Test Samples and Radioactive Source Sets.

1-2. Scope. The provisions of this bulletin are mandatory for use in conducting all types of surveillance inspection, as identified in this bulletin. The provisions only apply to Department of the Army depots and to depot activities.

1-3. Definitions. *a. Commonly Used Quality Assurance Terms.* Refer to MIL-STD-109 for definitions of these terms.

b. Specialized Terms. The following definitions are in alphabetical order by major heading. They apply to specialized terms used in this bulletin.

(1) *Codes.* Numbers and letters used for brevity.

(a) Inspection frequency code (IFC). A numeric code to tell how often to perform inspection of materiel in storage. The numeric codes and definitions are listed in paragraph 2-6e.

(b) Quality defect code (QUAL DEF CODE). A numeric code assigned to indicate the category of a given defect and to identify, by explanation, that particular defect. The coding system and definitions are enumerated in paragraph 2-6a.

(c) Shelf-life code (SLC). A code assigned to a shelf-life item. The code identifies a period of time that starts with the date of manufacture or assembly and ends when the item must be used or be subjected to inspection, test, restoration, or to disposal action (AR 700-89). The codes and associated times are listed in paragraph 2-6d.

(d) Test required code (TRC). A three-digit numeric-alpha code that is used in APPENDIX A to indicate that only a simple examination is required (QUAL DEF CODES) or to cross-reference additional inspection requirements. The code meanings are in paragraphs 2-6a and 2-6f.

(2) *Corrosion, metals.* See paragraph 2-6a(3)(j).

Stage I (Defect Code 90). Discoloration or staining with no direct visual evidence of pitting, etching, or other surface damage.

Stage II (Defect Code 91). Red, brown, green, black, or white corrosion product accompanied by minor etching or minor surface pitting.

Stage III (Defect Code 92). Red, brown, green, black, or white corrosion product with or without etching, pitting, or more extensive surface deterioration resulting in a loose or granular condition.

Stage IV (Defect Code 93). Red, brown, green, black, or white corrosion progressed to the point where fit, wear, function, or life of the item has been affected. Powdered or scaly condition with pits or irregular areas of material removed from the surface of the item.

(3) *Defect number.* A number associated with a particular defect. It identifies the defect and the severity of the defect. The numbers are used in particular classification of defects tables. The defect designated by a number is not permanent such as in Quality Defect Code [(11b) above] but is redefined in each table where the number is used, although often the definition will closely parallel a Quality Defect Code definition. Sequential numbers starting with 0 are Critical defects; sequential numbers starting with 101 (1XX) are Major defects; and sequential numbers starting with 201 (2XX) are Minor defects.

(4) *Deterioration.* A change in an items characteristics caused by an environment that adversely affects its ability to function as intended. See paragraph 2-6a(3Xj).

(a) Deterioration, polymeric plastic items. Molded organic compounds: celluloid, bakelite, lucite, vinyl, rubber, etc.

Stage I (Defect Code 94A). Fungus damage, color change, or distortion.

Stage II (Defect Code 94B). Sticky surface, craze cracks, dissolved paint, or small cracks.

Stage III (Defect Code 94C). Liquefied material, large cracks, crumbled (brittle), or fractured (broken) to an extent where fit, function, or life has been affected.

(b) Deterioration, polymeric non-plastic items. Non-molded organic components: cloth, leather, hair, fur, felt, paper, cork, cardboard, wood, etc.

Stage I (Defect Code 95A). Mold, fungus damage, or color change.

Stage II (Defect Code 95B). Shredding, warping, shrinkage, distortion, embrittlement, small separations (cracks or tears), or slight swelling.

Stage III (Defect Code 95C). Gross swelling, soggy, large cracks, rot, insect infestation, brittle disintegration, or large or complete separations to an extent where fit, function, or life has been affected.

(c) *Deterioration, inorganic vitreous items.* Glass, ceramic, solid, carbon, etc.

Stage I (Defect Code 96A). Small cracks or crazed (crackled surface).

Stage II (Defect Code 96B). Spalling (chipped) or fractured (broken, major cracks, or splits) to an extent where fit, function, or life has been affected.

(5) *Inspection (Type of).*

(a) *Cyclical inspection (CI).* Surveillance of material in storage performed on a regular basis. In this bulletin, the cycle is established in APPENDIX A by the Inspection Frequency Code (IFC-see paragraph 2-6e). The purpose is to determine the serviceability status of items at the end of each cycle.

(b) *Initial receipt inspection (IRI).* An inspection performed on newly manufactured materiel received directly from a vendor, manufacturer, or government activity. The purpose is to determine if the items, the packing, or the preservation have been damaged in transit and whether the packaging, packing, marking, and preservation are correct. This inspection is not intended as an acceptance-type inspection.

(c) *Pre-Issue inspection (PII).* The inspections and tests on materiel immediately preceding issue.

(d) *Prestorage inspection (PSI).* An inspection performed on materiel received from other depots, posts, camps, stations, or overseas returns received within CONUS. The purpose is to determine receipt condition and the current degree of serviceability of the items when serviceability status is unknown.

(e) *Special inspection (SPI).* An inspection performed at the direction of higher headquarters or as deemed necessary to satisfy local installation requirements.

(f) *Unit basis inspection (USI).* An inspection where each unit in the lot is inspected for the defect characteristic under consideration. The unit basis method is also used for serially-numbered major end items that are considered separately for surveillance purposes.

(6) *Lots.*

(a) *Depot lot.* A combination of lots, irrespective of manufacturer or age, of the same kind and type of materiel grouped into one large single lot for the purpose of economy in surveillance.

(b) *Grand lot.* All lots of the same kind and type of materiel from one manufacturer or reconditioning agency grouped into one large lot for the purpose of economy in surveillance.

(c) *Manufacturer's lot.* A quantity of one item of materiel manufactured or assembled in one

plant, from raw materials or components of the same physical characteristics, under uniform conditions designed to effect homogeneity, and meeting definite physical and chemical requirements of established specifications and drawings (this includes renovated, reworked, and reconditioned lots).

(d) *Miscellaneous lot.* A combination of a single manufacturer's small lots or lot fragments possessing the same technical history.

(e) *Mixed lot.* A combination of the same kind and type of materiel for which identification of the manufacturer, the lot number, or the time of manufacture is incomplete.

(7) *Occurrence basis.* An inspection, without a predetermined time frame, that is performed as the need occurs, eg, initial receipt inspection (IRI) is performed when the shipment arrives.

(8) *Serviceable.* The condition of an item that has been determined by inspection to be satisfactory and safe for its intended use.

(9) *Shelf-life item.* An item of supply possessing deteriorative or unstable characteristics to the degree that a storage time period must be assigned to assure that it will perform satisfactorily in service. There are two types of shelf-life items, defined by AR 700-89 as:

(a) *Type I shelf-life item.* An item of supply that is determined, through an evaluation of technical test data or actual experience, to be an item with a definite non-extendable shelf life.

(b) *Type II shelf-life item.* An item of supply having an assigned shelf life, where the shelf life may be extended after the completion of a prescribed inspection, a test, or a restorative action.

(10) *Storage serviceability standards (SSS).* Technical documents containing inspection instructions and criteria essential to determine serviceability of materiel in storage.

(11) *Unserviceable.* The condition of an item that has been determined by inspection to be unsatisfactory or unsafe for its intended use.

1-4. Errors or Omissions. Forward comments regarding errors or omissions in this bulletin on DA Form 2028, Recommended Changes to Publications and Blank Forms, to the Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-QAE, Rock Island, IL 61299; and send an information copy to the Commander, US Army Armament Research and Development Command, ATTN: DRDAR-QAC-R, Aberdeen Proving Ground, MD 21010.

SECTION II

STORAGE AND SPECIAL INSTRUCTIONS

2-1. References. The following publications form a part of this bulletin to the extent specified.

AR 380-5	Department of the Army Information Security Program
AR 700-89	Identification, Control, and Utilization of Shelf-Life Items
AR 702-7	Reporting of Product Quality Deficiencies Across Component Lines
AR 708-1	Cataloging and Supply Management Data
AR 725-50	Requisitioning, Receipt, and Issue System
AR 740-1	Storage and Supply Activity Operations
AR 740-3	Care of Supplies in Storage (COSIS) System
MIL-STD- 105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD- 109	Quality Assurance Terms and Definitions
TM 38-750	The Army Maintenance Management System (TAMMS)
TM 743-200-1	Storage and Materials Handling

NOTE

Additional references peculiar to a given group of Radiac Calibrators, Radiac Sets, Radioactive Test Samples and Radioactive Source Sets will be cited in the appendix for the group of items.

2-2. Safety. During surveillance and normal handling (TM 743-200-1) of Radiac Calibrators, Radiac Sets, Radioactive Test Samples and Radioactive Source Sets inspection personnel shall observe the safety precautions prescribed for the operations personnel, the Standard Operating Procedures (SOPs), the safety requirements cited in applicable regulations, the safety guidance in applicable technical manuals, and the special safety precautions cited in the applicable appendix of this bulletin.

2-3. Lotting. *a. Type of Lotting Permitted.* The applicable appendix of this bulletin specifies the type of lotting permitted when conducting surveillance of the Radiac Calibrators, Radiac Sets, Radioactive Test Samples and Radioactive Source Sets.

b. Depot Lot. A depot lot is formed by combining lots regardless of manufacturer or age into a large single

lot. Actual formation is a paper transaction; regrouping and marking of the materiel is not required. A depot lot, as such, cannot be declared unserviceable. When, through surveillance, a lot within the depot lot appears unserviceable, withdraw the lot concerned and take additional samples utilizing the sampling plan provided in this bulletin. If the suspect lot is found serviceable, it remains a part of the depot lot. If the suspect lot is found unserviceable, the lot is eligible for rework or disposal in accordance with existing regulations. When 20 percent of the lots within the depot lot have become unserviceable, the depot lot shall be dissolved and the individual lots therein tested on a lot-by-lot basis. A depot lot must meet criteria as follows:

(1) *Kind, type, and model.* All items must be the same kind, type, and model.

(2) *Storage.* All items must be stored under similar conditions at the same depot.

(3) *Serviceability status.* All lots must possess the same serviceability status, ie, serviceability known (based upon prior surveillance) or serviceability unknown. However, when new procurement is involved, base serviceability on acceptance inspection, not on surveillance.

c. Grand Lot. A grand lot is formed by combining all lots from one manufacturer into a large single lot. Actual formation is a paper transaction, regrouping and marking of the materiel is not required. A grand lot, as such, cannot be declared unserviceable. When, through surveillance, a lot within the grand lot appears unserviceable, withdraw the lot concerned and take additional samples by the sampling plan provided in this bulletin. If the suspect lot is found serviceable, it remains a part of the grand lot. If the suspect lot is found unserviceable, the lot is eligible for rework or disposal in accordance with existing regulations. When 20 percent of the lots within the grand lot have become unserviceable, the grand lot shall be dissolved and the individual lots therein tested on a lot-by-lot basis. A grand lot must meet criteria as follows:

(1) *Kind, type, and model.* All lots must be the same kind, type, and model.

(2) *Manufacture.* All lots must be the product of the same manufacturer or reconditioning agency.

(3) *Packaging, packing, and preservation.* All lots must have the same type packaging, packing, marking, and preservation.

(4) *Storage*. All lots must be stored under similar conditions at the same depot.

(5) *Serviceability status*. All lots must possess the same serviceability status, ie, serviceability known (based upon prior surveillance) or serviceability unknown. However, when new procurement is involved, base serviceability on acceptance inspection not on surveillance.

d. Manufacturer's Lot. A manufacturer's lot consists of those items manufactured or assembled by one manufacturer or reconditioning activity and bearing the same manufacturer's or reconditioning agency's lot identification number. The manufacturer's lot must meet criteria as follows:

(1) *Packaging, packing, and preservation*. All items must have the same type packaging, packing, marking, and preservation.

(2) *Storage*. All items must be stored under similar conditions at the same depot.

(3) *Serviceability status*. All items must possess the same serviceability status, ie, serviceability known (based upon prior surveillance) or serviceability unknown. However, when new procurement is involved, base serviceability on acceptance inspection not on surveillance.

e. Miscellaneous Lot. A miscellaneous lot is formed by combining a single-manufacturer's lots or lot fragments into one lot. The size of miscellaneous lots is restricted by the applicable appendix of this bulletin. Actual formation of the lot is a paper transaction, regrouping and marking of the materiel is not required. A miscellaneous lot may be declared unserviceable as a whole. The miscellaneous lot must meet criteria as follows:

(1) *Kind, type, and model*. All items must be of the same kind, type, and model.

(2) *Manufacturer*. Each small lot or lot fragment must be the product of the same manufacturer or reconditioning agency.

(3) *Packaging, packing, and preservation*. All items must have the same type packaging, packing, marking, and preservation.

(4) *Storage*. All items must be stored under similar conditions at the same depot.

(5) *Serviceability status*. All items must possess the same serviceability status, ie, serviceability known (based upon prior surveillance) or serviceability unknown. However, when new procurement is involved, base serviceability on acceptance inspection not on surveillance.

f. Mixed Lot. A mixed lot is formed by combining those items with incomplete identification into one lot. The size of the mixed lot is restricted by the applicable appendix of this bulletin. Actual formation of the lot is a paper transaction, regrouping and marking of the materiel is not required. A mixed lot may be declared

2-2 unserviceable as a whole. The mixed lot must meet criteria as follows:

(1) *Kind, type, and model*. All items must be of the same kind, type, and model.

(2) *Packaging, packing, and preservation*. All items must have the same type packaging, packing, and preservation.

(3) *Storage*. All items must be stored under similar conditions at the same depot.

2-4. Sampling. Perform sampling for Radiac Calibrators, Radiac Sets, Radioactive Test Samples and Radioactive Source Sets by the instructions in this paragraph and in the applicable appendixes of this bulletin. The sampling instructions that follow are designed to fit the peculiarities of this group of items. In some instances, because of configuration, short shelf life, or past quality history, special sampling may be designed for an item within a group.

a. Initial Receipt Inspection (RI). Sampling shall be conducted by this paragraph and MIL-STD-105, Inspection Level S-3 and an AQL of 4.0 percent for Major Defectives and 10.0 percent for Minor Defectives.

b. Prestorage Inspection (PSI). Sampling shall be conducted by this paragraph and MIL-STD-105, Inspection Level S-3, and AQL of 4.0 percent for Major Defectives and 10.0 percent for Minor Defectives.

c. Cyclical Inspection (CI). Sampling shall be conducted by this paragraph and MIL-STD-105 using the Inspection Level and AQL specified in APPENDIX A or the sampling instructions provided in the applicable appendix (TRC) of this bulletin for the item being sampled.

d. Pre-Issue Inspection (PII). Sampling, if required, see para 2-5d(2) shall be conducted by c above.

e. Selection of Samples.

(1) All portions of the lot must be located for sampling.

(2) Every reasonable effort must be made to obtain a random sample. When conditions make a proper random sampling impossible, record this fact and a brief description of the condition that prevents random sampling under the remarks section Part I, Block 20, of the DA Form 984, 1 Jun 80, Munitions Surveillance Report. See paragraph 2-9a(1), Part I (t), of this bulletin.

(3) In selecting samples from depot lots, grand lots, or miscellaneous lots, choose the items to represent all material. For example, if a manufacturer's lot is one-third of the total lot, then select one-third of the lot sample at random from that manufacturer's lot.

f. Sample disposition.

(1) In the inspection records, identify as reinspected, all samples that have been inspected and then packed and resealed in barrier material.

(2) Reseal barrier material using the instructions furnished with the material, on the material, or with the sealing iron.

(3) Return serviceable samples to storage with the parent lot.

(4) Segregate samples with critical or major defects or samples that cannot be returned to the original package configuration and report such in the remarks section, Part II, Block 13, of DA Form 984, 1 Jun 80, Munitions Surveillance Report. See paragraph 2-9a(1), Part II (h) of this bulletin.

2-5. Inspection. Conduct all inspections and tests under the control of a qualified inspector. The inspections and tests normally will be conducted at the surveillance inspection area; however, when authorized, examinations or tests may be performed at the storage site or elsewhere, but must be within the limitations of all safety and security requirements.

a. Initial Receipt Inspection (IRI).

(1) *Frequency.* Perform this inspection on an occurrence basis [see para 1-3b(7)].

(2) *Classification of defects.* Use Table I to evaluate the incoming materiel.

Table I. Initial Receipt Inspection (IRI) or Prestorage Inspection (PSI)

Category	Defect Number	Defect	Inspection Method
<i>Critical: Major:</i>		None defined.	
	101 102	Item damaged Packaging, packing, or preservation damaged or deteriorated to the extent that adequate protection is no longer afforded to the item or handling and storing would be adversely affected.	Visual Visual
	103	Item packaging or packing contaminated, wet, or mildewed as a result of adverse shipping conditions	Visual
<i>Minor:</i>	104	Packaging, packing marking, or preservation incorrect	Visual
	201	Slight damage to packaging, packing, or preservation but not affecting the protection	Visual

(3) *Reporting.* Use DA Form 984 and the instructions in paragraph 2-9. In addition, report failure data and discrepancies encountered on SF 368, Quality Deficiency Report, per AR 702-7. See paragraph 2-9a(3) of this bulletin.

b. Prestorage Inspection (PSI).

(1) *Frequency.* Perform this inspection on an occurrence basis.

(2) *Examination and test.* When the serviceability status is unknown, perform the examination and test of the item by Appendix A instructions, including any applicable appendix (TRC) of this bulletin. Examine all lots for receipt condition using table I.

(3) *Reporting.* Use DA Form 984 and the instructions in paragraph 2-9.

c. Cyclical Inspection (CI).

(1) *Frequency.* Perform this inspection at the frequency indicated in Appendix A by the IFC (see para 2-6e).

(2) *Examination and test.* Perform the examinations and tests of the item by Appendix A instructions including any applicable appendix (TRC) of this bulletin.

(3) *Evaluation and reporting.* Make evaluations and reports per instructions in paragraph 2-7 and 2-9.

d. Pre-Issue Inspection (PII).

(1) *Frequency.* Perform this inspection just before OCONUS shipment of the item.

(2) *Examination and test.* When one-half or less of the cyclic period (defined by the IFC) remains, the cyclical period has been exceeded, or the date of the last surveillance inspection is unknown, perform a complete inspection of the item by Appendix A instructions including any applicable appendix (TRC) of this bulletin. When more than one-half of the cyclical period remains, perform only a visual examination by Appendix A and the applicable appendix (TRC) instructions.

(3) *Evaluation and reporting.* Make evaluations and reports by paragraph 2-7 and 2-9 instructions.

e. Special Inspection (SI). Perform this inspection as directed by higher headquarters or instructions provided locally to satisfy local installation requirements. This inspection may also be performed to determine the economic advisability of conducting further inspection (screening) on unsegregated items, returns from overseas, or used items that have not been reconditioned. Reports prepared for local use are authorized. Reporting, as in paragraph 2-9, is not required for this inspection except as may be directed by higher headquarters.

2-6. Coded Standards. The following is an explanation by heading of the codes used in Appendix A.

a. Quality Defect Code (QUAL DEF CODE). The codes, based on the definitions given in Appendix B of AR 740-3, are given as three digit numbers. The first digit identifies the severity of the defect by category. The second digit identifies one of the named general groups. The third digit identifies the actual defect within one of the general groups.

Example: Using the meanings and explanations given below, Code 113 indicates; 1-major, 1-packaging group, and 3-container damaged or deteriorated.

(1)	Severity (first digit).	22	Excessive weight or cube for containers.
Quality Defect Code	Category		
0	Critical	23	Containers, boxes, crates, or pallets damaged or deteriorated.
1	Major		
2	Minor	24	Intermediate or exterior container protection not compatible with mode of shipment, type of storage, destination, or other environment.
(2)	General groups (second digit).		
Quality Defect Code	Name		
0	Cleaning, preservation, painting, plating, or other processing.		Wrong level applied.
1	Packaging.	25	Containers, boxes, crates, or pallets do not meet specifications.
2	Packing and loading.	26	Wrong quantity per intermediate or exterior container. (Chargeable as one defect per container.)
3	Marking and labeling.		
4	Materiel deficiencies.	27	Major defect, if shortage-minor defect, if overage.)
5	Materiel deficiencies (continued).		
6	Functional certification or performance test.		Reserved for future use.
7	Document recording or routing deficiencies.	28	Reserved for future use.
8	Storage deficiencies.	29	
9	Miscellaneous.		
(3)	General groups and defects (second and third digits).		
	(a) Group 0 (cleaning, preservation, painting, plating, or other processing).		
Quality Defect Code	Explanation	Quality Defect Code	Explanation
00	Appearance (paint runs, overspray, not uniform, or not up to standard).	30	Preservation and packing (PIP) level or markings omitted, illegible, or incorrect.
01	Cleaning improper or inadequate.	31	Labels omitted, illegible, or incorrect.
02	Preservation improper or inadequate.	32	Special markings omitted, illegible, or incorrect.
03	Wrapping improper or inadequate.	33	Description or identification marking omitted, illegible, or incorrect (e.g., stock number, quantity, unit of issue, contract data, or condition code).
04	Protection afforded not compatible with mode of shipment, type of storage, destination, or other environment.	34	Address marking omitted, illegible, or incorrect.
05	Inadequate coverage or improper thickness.	35	Markings improperly located or wrong method of marking used.
06	Improper and inadequate preparation.	36	Reserved for future use.
07	Wrong type, method, or color.	37	Reserved for future use.
08	Drying improper or inadequate.	38	Reserved for future use.
09	Reserved for future use.	39	Reserved for future use.
(b)	Group 1 (packaging).		
Quality Defect Code	Explanation	Quality Defect Code	Explanation
10	No packaging applied.	40	Parts, components, or controls loose, improperly installed or assembled, out of adjustment, do not fit, or fail to function properly.
11	Sealing defective (bags or containers).		
12	Failed pressure retention, leak, or other test.	41	Damaged or defective item or parts (bent, broken, scratched, chipped, marred, cracked, warped, torn, stripped, crimped, burned, twisted, burned out, perforated, or pitted).
13	Container damaged or deteriorated.		
14	Protection not compatible with mode of shipment, type of shipment, destination, or other environment.	42	Does not meet specified tolerances or requirements (dimensional, finish, strength, torque, output, volume, color, stretch, size, illumination, or weight).
15	Wrong level applied.		
16	Containers or other packaging materials do not meet specifications (e.g., size, type, class, or style).	43	Parts or components missing.
17	Wrong quantity per unit package. (Chargeable as one defect per unit pack. Major defect, if shortage-minor defect, if overage.)	44	Wrong part or component found installed on end item or other assembly, or used to make up set or kit.
18	Reserved for future use.	45	Leak (liquid): gasoline, diesel, oil, water, etc.
19	Reserved for future use.		
(c)	Group 2 (packaging and loading).		
Quality Defect Code	Explanation	Quality Defect Code	Explanation
20	Improper loading, blocking, racking, tiedown, etc.	46	Leak (vapor): air or gas (nitrogen, oxygen, hydrogen, etc.).
Quality Defect Code	Explanation	47	Modification work order incomplete, improperly applied, or missing.
21	Stapling, nailing, strapping, or banding improper or inadequate.		

Quality Defect Code	Explanation
48	Soldering, welding, brazing, metallizing, or bonding defect.
49	Reserved for future use.
<i>(f) Group 5 (materiel deficiencies-continued).</i>	
Quality Defect Code	Explanation
50	Contamination (contains dirt, sludge, moisture, or other foreign matter).
51	Excessive moisture, fungus, mildew, rot, infestation, or weather cracks.
52	Item improperly classified.
53	Test or research required to determine true condition classification (assign code J or code K, per AR 725-50). (Chargeable as one minor defect per line item.)
54	Materiel marking missing or incorrect (e.g., serial number, data plate, piece mark, or cure date). (Chargeable as a minor defect if the correct item was shipped and a major defect if the wrong item was shipped.)
55	Shelf-life date exceeded.
56	Wrong item received or selected for shipment.
57	Lubrication improper or incomplete.
58	Improper identification.
59	Other.

(g) Group 6 (functional, certification, or performance test).

Quality Defect Code	Explanation
60	Required test or accomplished.
61	Failed test requirements (hydraulic).
62	Failed test requirements (electrical or electronic).
63	Failed test requirements (environmental).
64	Failed test requirements (mechanical).
65	Failed test requirements (pressure).
66	Failed certification or laboratory test.
67	Excessive heat or noise during operational test.
68	Parts or components damage (caused by functional failure during end item or component test).
69	Reserved for future use.

(h) Group 7 (document, recording, or routing deficiencies).

Quality Defect Code	Explanation
70	Wrong count (shortage). (Chargeable as one major defect per line item if value of quantity short is \$200 or more and one minor defect if less than \$200.)
71	Wrong count (overage). (Chargeable as one major defect per line item if value of quantity over is \$200 or more and one minor defect if less than \$200.)
72	Improper routing or process planning. (Chargeable as one minor defect per line item.)
73	Mixed materiel (two or more stock numbers recorded under the same stocknumber). (Chargeable as one minor defect per line item.)

Quality Defect Code	Explanation
74	Historical records, including The Army Maintenance Management System, TM 38-750, missing, incorrect, or incomplete.
75	Contract, specifications, receiving reports, or other required incorrect, incomplete, not available, or changes not with the contract (Chargeable as one minor defect per line item.)
76	Contract specifications or other inspection or acceptance purposes. (Chargeable as one minor defect per line item.)
77	Materiel not segregated (serviceable and unserviceable items intermingled). (Chargeable as one major defect per line item.)
78	Stock selection deficiency [first-in/first-out (FI/FO)]. (Chargeable as one minor defect per line item.)
79	Reserved for future use.

(i) Group 8 (storage deficiencies).

Quality Defect Code	Explanation
80	Improper or inadequate stacking or storing. (Chargeable as one minor defect per line item.)
81	Facility deficiencies: roof leaking, grid markings incorrect, equipment deficiencies, etc. (Chargeable as one minor defect per line item.)
82	Improper pallet count or quantities in location-inventory defects. (Chargeable as one minor defect per line item.)
83	Improper marking or placarding. (Chargeable as one minor defect per line item.)
84	Materiel mislocated. (Chargeable as one major defect per line item.)
85	Handling deficiencies (storage). (Chargeable as one minor defect per line item.)
86	Improper storage space. (Chargeable as one major defect per line item.)
87	Reserved for future use.
88	Reserved for future use.
89	Reserved for future use.

(j) Group 9 (miscellaneous).

Quality Defect Code	Explanation [see paras 1- 3b(2) and (4)]
90	Corrosion, metals, stage I.
91	Corrosion, metals, stage II.
92	Corrosion, metals, stage III.
93	Corrosion, metals, stage IV.
*94	Deterioration, polymeric plastic items (celluloid, bakelite, lucite, vinyl, rubber, etc.)
*94A	Deterioration, stage I.
*94B	Deterioration, stage II.
*94C	Deterioration, stage III.
*95	Deterioration, polymeric non-plastic items (cloth, leather, hair, fur, felt, paper, cork, cardboard, wood, etc.).
*95A	Deterioration, stage I.
*95B	Deterioration, stage II.

Quality Defect Code	Explanation
*95C	Deterioration, stage III.
*96	Deterioration, inorganic vitreous items (glass, ceramic, solid carbon, etc.).
*96A	Deterioration, stage I.
*96B	Deterioration, stage II.
97	Reserved for future use.
98	Reserved for future use.
99	Reserved for future use.

***Note.** These defect codes relate to the deterioration defined in paragraph 1-3b(4) (Definitions) and are required for evaluation of ARRCOM materiel using this supply bulletin. Since the codes are not included in AR 740-3, they need not be used for reporting under ADP systems, i.e., SPEEDEX.

b. Inspection Level (IL). Inspection levels have been selected from MIL-STD-105 to provide the smallest possible sample size consistent with quality requirements. Inspection level codes are as follows: *General Levels*

Special Levels	
G1 (I in MIL-STD- 105)	S1
G2 (II in MIL-STD- 105)	S2
G3 (III in MIL-STD- 105)	S3
	S4

c. Acceptable Quality Level (AQL). Acceptable quality levels have been selected from MIL-STD-105 to give that level of sampling protection required to provide serviceable equipment to users. Separate AQL's are provided for major and minor defects.

d. Shelf-Life Codes (SLC). The codes shown in Appendix A were assigned by the developers of the item. The codes may not have been incorporated into the Army Master Data File (AMDF). Shelf-life codes for Type I and Type II shelf-life items are defined as follows:

Shelf life	Type I	Type II
Non-deteriorative	0	0
1 month	A	--
2 months	B	--
3 months	C	1
4 months	D	--
5 months	E	--
6 months	F	2
9 months	G	3
12 months	H	4
15 months	J	--
18 months	K	5
21 months	L	--
24 months	M	6
27 months	N	--
30 months	P	--
36 months	Q	7
48 months	R	8
60 months	S	9

NOTE

Assign a shelf life code "x" to military essential and medical items with a shelf life of greater than 60 months (5 years).

e. Inspection Frequency Codes (IFC). The following codes are used in appendix A to tell how often to perform inspection of materiel in storage.

Code	Frequency (months)
1	6
2	12
3	24
4	30
5	60

f Test Required Codes (TRC).

(1) Except for the letter codes given below, the first character (numeric) will be 4, indicating a chemical related TRC. The second and third characters (alpha) will identify a specific inspection requirement. [See paragraph 2-10(b) for cross-referencing instructions.] (2) Some uncomplicated items require only a simple examination. To cover those items not requiring more detailed examination, the following codes apply:

Inspection	TRC Code
Dimensional	OOD
Functional	OOF
Hardness	OOH
Laboratory	OOL
Nondestructive	OON
Pressure	OOP
Tensile	OOT
Visual	OOV
Weight	OOW

g. Packing Codes (PC). An alpha code that represents the minimum level of protection required based on the prescribed storage conditions. The codes are as follows:

Code	Level of Protection
A	Maximum military
B	Intermediate military
C	Minimum Military
X	Industrial/Commercial

h. Type Storage Codes (TSC). An alpha code assigned to an item to indicate the recommended type of storage. These codes are defined by AR 708-1, 1 April 1981.

Code	Explanation
A	Heated warehouse space (general purpose).
B	Unheated warehouse space (general purpose).
C	Controlled humidity warehouse space.
E	Chill space.
F	Freeze Space.
G	Shed, nonwarehouse space.
Q	Hazardous commodity space (non-Class V items, e.g., acids, compressed gasses, or radioactive).
U	Open space (materiel may be stored in open storage).
Y	Storage space for ammunition items (Class V) covered by specific regulations elsewhere.
Z	A storage environment identified by one of the codes is not necessary. See AR 740-1, chapter section III, for guidance.

2-7. Evaluation. a. Serviceability Based on Sampling Inspection. A lot shall be classified as serviceable provided no critical defect is observed and the number

of major, minor, or test defects does not exceed the number allowed in the sampling plan for the item.

b. Serviceability on Unit Basis Inspection. An item inspected on a unit basis, or subjected to 100 percent inspection, is serviceable if the following criteria are met:

- (1) No defects are observed.
- (2) All requirements for test or analysis are met.

(3) All units have been modified to existing Modification Work Orders (MWO's).

c. Special Instructions. In addition to criteria for evaluation contained in this paragraph, special criteria for certain items or groups of items are provided, when necessary, in the applicable appendixes of this bulletin.

d. Procedure for Rounding Off. Numerical requirements, when stated, indicate the number of significant digits to be retained, i.e., the last figure or decimal place to be reported. The procedure given below is to be used in rounding off observed or calculated values for the purpose of evaluation.

(1) When the first digit dropped is less than 5, the preceding digit is not changed. When the first digit dropped is greater than 5, or 5 and some succeeding digit is not zero, the preceding digit is increased by 1. When the first digit dropped is 5, and there are no succeeding digits or all succeeding digits are zero, add 1 to the preceding digit if it is odd and leave it unchanged if it is even.

(2) Examples when rounding to two decimal places:

2.3142 = 2.31 2.3249 = 2.32	The first digit dropped is less than 5-leave preceding digit unchanged regardless of any succeeding digits.
2.3150 = 2.32 2.3250 = 2.32	The first digit dropped is exactly 5, or 5 followed by zeroes-add 1 to the preceding digit if it is odd and leave it unchanged if it is even.
2.3152 = 2.32 2.3252 = 2.33	The first digit dropped is 5 followed by other than zeroes-add 1 to the preceding digit.
2.3160 = 2.32 2.3260 = 2.33	The first digit dropped is greater than 5-add 1 to the preceding digit regardless of any succeeding digits.

e. Condition Coding. Based on evaluation, lots or items shall be assigned appropriate condition codes as explained in AR 725-50. Enter the condition codes in Part I, Block 21b and 21c, of DA Form 984, 1 June 1980. See paragraph 2-9a(1), Part I (v), and (w) of this bulletin.

2-8. Surveillance Test and Measuring Equipment.

a. Availability and adequacy. Determine the availability and adequacy of all test and measuring equipment required to perform the examinations and tests required by this bulletin. If test or measuring equipment is unavailable or inadequate, report such within 30 days to the Commander, US Army Armament Materiel

Readiness Command, ATTN: DRSAR-QAF, Rock Island, IL 61299.

b. Calibration. Calibrate the test and measuring equipment as established by the applicable technical bulletin, technical manual, or instruction manual. In the event that adequate calibration procedures are not included in these documents, ask for the proper calibration procedure from the organization responsible for design or supply of the test equipment. Establish a calibration system for the calibration of inspection measuring gages and test equipment to the requirements of AR 750-25. The records and reports required in calibration of Army equipment are described in TM 38-750.

2-9. Reports and Reporting. Report inspections and tests made using this bulletin to the commands designated in the following subparagraphs. Report on the designated forms.

a. Forms.

(1) Munitions Surveillance Report (DA Form 984, 1 Jun 80). Use this form to record the results of all examinations and tests when conducting prestorage inspection, initial receipt inspection, cyclical inspection, or pre-issue inspection.

NOTE

This form may also be used for special inspection when so directed by higher headquarters.

• *Form Instructions* •

Part I: *Descriptive Data of Ammunition Represented By Sample.*

(a) *Block 1.* Enter the actual storage location, which may not necessarily be the depot or storage activity having accountability.

(b) *Block 2.* Enter the local report number.

(c) *Block 3.* Enter the date of the report.

(d) *Block 4.* Enter the complete standard nomenclature and model number of the item.

(e) *Block 5.* Record the complete manufacturer's lot number. When surveillance is authorized on the basis of a depot lot, miscellaneous lot, or grand lot, enter the lot number applicable to the type of lot, and complete DA Form 985 (Data Sheet for Grand Lots, Miscellaneous Lots, or Depot Lots) using the instructions in paragraph 2-9a(2) below.

(f) *Block 6.* See appendix C paragraph C-6.

(g) *Block 7.* See appendix C paragraph C-6.

(h) *Block 8.* See appendix C paragraph C-6.

(i) *Block 9.* Record the number of samples selected for examination and test.

(j) *Block 10.* Record the number of items (minus the sample size if the samples cannot be returned to the lot) remaining in the lot at the depot.

(k) *Block 11.* Self-explanatory.

(l) *Block 12.* Self-explanatory.

(m) *Block 13.* Enter the type and date of the last inspection, e.g., Prestorage, 10 July 1981.

(n) *Block 14.* Enter the type of inspection and the date that this current inspection is performed, e.g., Cyclical, 1 July 1982.

(o) *Block 15.* Record the manufacturer or reconditioning agency and the date of manufacture. When more than one manufacturer is represented because of the nature of the lot enter N.A.

(p) *Block 16.* Self-explanatory.

(q) *Block 17.* Self-explanatory.

(r) *Block 18.* Record the condition of the packaging, packing, marking, and preservation.

(s) *Block 19.* State whether the lot passed or failed the visual examination requirements of this supply bulletin. Record by Quality Defect Code, Category, Defect Number, and number of Defects or Defectives, all applicable visual defects or defectives. (Quality Defect Codes shall be as given in APPENDIX A. Categories and Defect Numbers shall be as given for a defect listed in the various classification paragraphs of the applicable appendix.) Reference this bulletin, APPENDIX A, the applicable appendix, and the table number for the item.

Example: SB 740-94-10

APPENDIX A

Defect	Number of Defects
104	1
113	2
130	2
132	1

APPENDIX C, TABLE C- 1

Categories	Defect	Number of Defects
Critical:	-	None
Major:	101	1
	105	2
	108	1
Minor:	-	None

NOTE

Do not list the same defect twice. When a defect is in the appendix for an item and it is in APPENDIX A, record the number of defects under the classification and Defect Number of the appendix for the item rather than record them under APPENDIX A, e.g., if "Component missing", is listed as a 104 defect in APPENDIX C, record such defects under APPENDIX C but do not list them again as code 143 defects under APPENDIX A.

(t) *Block 20.* Note any observation relevant to the condition of an item or to the actual inspection in this block. Examples of such observations are: different storage conditions of lot segments, unlisted defects, inspection equipment not available or calibration interval exceeded, and severity of defects listed in block 19. Include a brief lot history when possible.

(u) *Block 21a.* Self-explanatory.

(v) *Block 21b.* Based on the results of visual examinations (Part I, Block 19) enter the condition code (see para 2-7e).

(w) *Block 21c.* Based on the test results (Part II, Block 13) enter the condition code (see para 2-7e).

(x) *Block 22.* Self-explanatory.

Part II: *Results of Surveillance Test.*

(a) *Block 1.* Self-explanatory.

(b) *Block 2, 2a, and 2b.* Enter this supply bulletin number (SB 740-94-10), revision, or change, and the date of this supply bulletin, revision, or change. When applicable, enter the letter of authority or directive for any performed special surveillance not in accord with this SB.

(c) *Blocks 3, 4, 5, and 6.* Enter the meteorological conditions at the test area if they are relevant to the test. Otherwise enter N.A.

(d) *Blocks 7 and 8.* Consecutively number the outer packages from which the samples were selected, and the individual samples, starting with "1". Record these numbers in blocks 7 and 8.

(e) *Blocks 9a and 9b.* Enter the type and model of the component or item in the heading of each column and enter the lot number of each sample on the appropriate line.

(f) *Block 10.* In the heading of each column, describe the test characteristic to be tabulated. Indicate attribute deficiencies with "x" at the intersection of the individual sample number and the test characteristic, or enter the actual test result.

(g) *Blocks 11 and 12.* In the space above blocks 11 and 12 indicate whether the evaluation is based on "defects" of "defectives" by crossing out the one that does not apply. Enter an "x" at the intersection of the applicable defective column sample number when deficiencies have been noted in block 10 and evaluation is based on defectives. Enter the total number of defects observed for each sample in the appropriate columns when the evaluation is based on defects.

(h) *Block 13.* State whether the lot passed or failed the test requirements established in the applicable appendix. Enter any additional information that might have had an affect on test results. Enter any recommendations on lot disposal, e.g., screen or renovate.

(i) *Block 14.* Self-explanatory.

(j) *Block 15.* Not applicable.

(2) *Date sheet for Grand Lots, Miscellaneous Lots, or Depot Lots, (DA Form 985, 1 Jul 53).* This form shall be used by the depot or storage activity to record the formation of these lots.

Forms Instructions

(a) *Block 1.* Enter the complete standard nomenclature and model number of the item. Enter the National Stock Number (NSN).

(b) *Block 2.* Enter the depot or storage activity where the items that make up the lot are stored.

(c) *Block 3.* Enter the type of storage.

(d) *Block 4.* State the previous serviceability of each lot composing the grand lot, miscellaneous lot, or depot lot.

(e) *Block 5.* Enter the method of packing and preservation.

(f) *Block 6.* Not applicable.

(g) *Column a.* Enter the manufacturer or manufacturers of the individual lots forming the grand lot, miscellaneous lot, or depot lot.

(h) *Column b.* Enter the manufacturer's lot number for each of the individual lots.

(i) *Column c.* Enter the date of manufacture of each lot.

(j) *Column d.* Enter the lot size for the individual lots listed in column b. Total the column values and enter the sum in the total block at the foot of the column.

(k) *Column e.* Record the number of samples selected for test from each lot listed in column b. Total the column values and enter the sum in the total block at the foot of the column.

(l) *Column f.* Record the number of samples selected for visual examination from each lot listed in column b. Total the column values and enter the sum in the total block at the foot of the column.

(m) *Columns g, h, and i.* Not applicable.

(n) *Remarks.* Enter any pertinent information regarding formation of the lot or sampling procedure.

(o) *Supplementing serviceability report number.* Enter the same report number here that is on DA Form 984.

(p) *Other blocks.* Self-explanatory.

(3) *Quality Deficiency Report (QDR)* (SF 368). Submit this form when initial receipt inspection reveals unsatisfactory new materiel from a manufacturer or unsatisfactorily renovated, repaired, or modified materiel from a contractor. Prepare and distribute SF 368 as specified in AR 702-7.

(4) *Critical defects report.* When a critical defect is found, report it immediately to the Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-QAF, Rock Island, IL 61299. Report the incident via teletype or telephone and follow the initial report with a DA Form 984 giving complete information concerning the extent of, and the circumstances pertaining to, the critical defect.

b. *Errors in Reports.*

(1) Only errors that affect the serviceability status of the materiel evaluated need be corrected. Make corrections by replacing those specific pages affected by the error with "Corrected Copies."

(2) The inspection activity that initiated the erroneous report shall prepare and distribute the corrected pages required by (1) above. Each such page shall be marked "Corrected Copy." Denote the corrected entries by encircling them.

c. *Classified Date.* Unless specifically authorized by the US Army Armament Research and Development Command, Security Office, place no classified information on the materiel serviceability reports. Use special codes as much as possible in preparing the documents when materiel or information is classified. If classified information is required place it on a separate sheet, not the materiel serviceability report form. Properly mark this sheet and transmit it by authorized means according to its degree of classification. Attention is directed to AR 380-5 which states that unnecessary classification or higher than necessary classification is to be avoided.

d. *Submission of Reports.* With the exception of reports used for "Special Inspection", submit the original and two copies of all reports required by this bulletin to the Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-QAF and DRSAR-LEA-C, Rock Island, IL 61299.

2-10. Special Instructions. a. *Special Testing.* Some tests included in this bulletin are for the detection of leaking radioactive materiel. Special test equipment and special laboratory facilities may be required. The radioactive items requiring this type of testing are identified in the appropriate appendix. Items so identified shall be tested as directed by the Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-QAF, Rock Island, IL 61299. Have the shipment of test samples or the smear papers from the wipe tests coordinated and directed by the National Inventory Control Point (NICP), through the above address.

b. *TRC Cross-Referencing.* For any TRC other than those defined in paragraph 2-6f, find the TRC code in APPENDIX A for the item to be inspected. Refer to the table of contents of this bulletin. In the column headed TRC, locate the TRC and then the corresponding appendix. Go to that appendix and perform the additional inspection as required for the item. The TRC is also given in the heading of each appendix and near the SB number on each page of the appendix.

APPENDIX A

CODED STANDARDS

National stock number	Item name	Quality defect code	IL	AQL		SLC	IFC	TRC	PC	TSC
				MAJ	MIN					
6665-00-400-5388	CALIBRATOR SET, RADIAC	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 192 193 290	S3	4.0	10.0	0		4GA	ABX	QQQ
6665-00-508-0594	RADIOACTIVE TEST SAMPLE	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 192 193 290	S3	4.0	10.0	0		4GA	ABX	BBC
6665-00-618-1348	RADIOACTIVE TEST SAMPLE	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 192 193 290	S3	4.0	10.0	0		4GA	AB	QQ
6665-00-669-0077	CALIBRATOR SET, RADIAC	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 192 193 290	S3	4.0	10.0	0		4GA	-BX	ZBC
6665-00-715-1034	RADIAC SET	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 192 193 290	S3	4.0	10.0	0		4GA	AB	QQ
6665-00-715-5141	RADIOACTIVE TEST SAMPLE M7	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 290 192 193	S3	4.0	10.0	0		4GA	ABX	QQ-
6665-00-767-7497	CALIBRATOR RADIAC (AN/UDM-6 ALPHA)	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 290 192 193	S3	4.0	10.0	0		4GA	AB	QQ
6665-00-820-8633	RADIAC SET RADIAC (T290AMOD3)	203 104 211 113 130 132 143 150 151 154 169 175 178 180 191 290 192 193	S3	4.0	10.0	0		4GA	AB	QQ
6665-00-832-6159 NOTE: THIS IS B16 ITEM (CECOM)	RADIOACTIVE TEST SAMPLE (MX7338 KR85)	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 290 192 193	S3	4.0	10.0	0		4GA	BX	-
6665-00-856-8233 178 180 191 290	RADIOACTIVE SOURCE (M1A1CO60)	203 104 211 113 130 132 143 150 151 154 169 174	S3	4.0	10.0	9		4GA	AB	QQ
6665-00-856-8235	RADIOACTIVE SOURCE SET (3A1 CO 60)	192 193 203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 290 192 193	S3	4.0	10.0	B		4GA	ABX	QQQ

National stock number	Item name	Quality defect code	IL	AQL		SLC	IFC	TRC	PC	TSC
				MAJ	MIN					
6665-00-904-2280	RADIOACTIVE TEST SAMPLE (CO60)	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 290 192 193	S3	4.0	10.0	R		4GA	ABX	
*6665-00-904-2283	RADIOACTIVE TEST SAMPLE	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 290 192 193	S3	4.0	10.0	9		4GA	ABX	BBC
*6665-00-963-4074	RADIOACTIVE TEST SAMPLE	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 290 192 193	S3	4.0	10.0	S		4GA	ABX	-
6665-00-973-1123	CALIBRATOR RADIAC (TS1230A PU239)	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 290 192 193	S3	4.0	10.0	0		4GA	AB	QQ
6665-00-997-6194	RADIOACTIVE TESTSAMPLE (M9)	203 104 211 113 130 132 143 150 151 154 169 174 178 180 191 290 192 193	S3	4.0	10.0	0		4GA	ABX	BBC

*Spare Parts of M2A1 Chemical Lab 6640-00-066-4621.

APPENDIX B

INSPECTION FREQUENCY

B-1. Purpose. The purpose of this special instruction is to provide the storage inspection frequency for each item covered by this bulletin.

B-2. Instruction. a. The inspection frequency for given storage environments and given levels of protection is shown in table B-1. The degrees of protection and the storage environments cited in the table are required to set the inspection frequency.

b. Abbreviations used on the table are as follows:

- IFC-Inspection Frequency Code
- PC-Packaging Code
- TSC-Type Storage Code

c. Codes used in the tables are defined in paragraph 2-6, of this bulletin.

d. An example of the use of the table follows:

(1) Given: A quantity of a stock numbered item selected for inspection is listed in appendix A, has

been provided Level B, intermediate military protection (PCB), and is stored in a Code A heated warehouse space, Type Storage Indicator Code (TSC A).

(2) Problem. Determine the inspection frequency.

(3) Solution.

(a) Refer to table B-1.

(b) The level of protection has been given as Level B. This is shown on the table as PCB (Packaging Code B).

(c) The storage environment has been given as heated warehouse. From paragraph 2-6f, of this bulletin, it is determined that the heated warehouse storage environment is designated A. This is shown on the table as TSC A (Type Storage Code A).

(d) The intersection of the Storage Environment Line TSC A, and the Level of Protection Column PCB, is at IFC 3 (see table B-1).

(e) IFC 3 indicates that the stock numbered item, stored and packaged as indicated above, should be inspected every 24 months.

Table B-1. Level of Protection

TSC C (Controlled Humidity)
TSC A (Heated Warehouse)
TSC B (Unheated Warehouse)
TSC Q (Radioactive Material)

PCA (Max Mil Pkg)	PCB (Inter Med Mil Pkg)	PCX or PCC (Ind/Com or Min Mil Pkg)
IFC 4 (30 months)	IFC 4 (30 months)	IFC 3 (24 months)
IFC 3 (24 months)	IFC 3 (24 months)	IFC 2 (12 months)
IFC 3 (24 months)	IFC 3 (24 months)	IFC 2 (12 months)
IFC 3 (24 months)	IFC 3 (24 months)	IFC 2 (12 months)

INSPECTION FREQUENCY

STORAGE ENVIRONMENT

APPENDIX C
TRC-4GA

QUALITY ASSURANCE INSPECTION INSTRUCTIONS
STORAGE SERVICEABILITY STANDARD ADDENDUM

WARNING

Many of the items cited in this inspection instruction contain radioactive source, see paragraph C-1. The inspection for these items shall be performed in a well ventilated area. Precautions relative to handling radioactive materiel are as defined in applicable licenses (para C-5) issued by the US Nuclear Regulatory Commission (NRC).

Chemical Command, ATTN: AMSMC-QAK, Rock Island, IL 61299-6000. Copies of correspondence will be provided the Commander, US Army Armament, Munitions and Chemical Command, ATTN: AMSMC-QAE (A), Aberdeen Proving Ground, MD 21010-5423.

C-3. SAFETY PROVISIONS.

a. *General.* Refer to SB 740-1, TM 3-220, TM 3-221, AR 740-3, AR 385-11 and Approved Standing Operating Procedures (SOP's).

C-1. PURPOSE. This Quality Assurance Inspection Instruction provides peculiar instructions and inspection requirements in addition to those coded inspection requirements contained within Appendix A for the following items:

Name	NSN	Examination	License (See C-5)
Calibrator Radiac Radioactive Test Sample	6665-00-400-5388	Alpha	5
Radioactive Test Sample	6665-00-508-0594	Gamma	5
Calibrator Radiac Radioactive Test Sample	6665-00-618-1348	Alpha	4
Radioactive Test Sample	6665-00-669-0077	Gamma	5
Calibrator Radiac Radioactive Test Sample	6665-00-715-1034	None	
Radioactive Test Sample	6665-00-715-5141	Alpha	4
Calibrator Radiac Radioactive Test Sample	6665-00-767-7497	Alpha	5
Radioactive Test Sample	6665-00-820-8633	None	
Radioactive Source Set	6665-00-832-6159	Gamma	5
Radioactive Source Set	6665-00-856-8233	Gamma	1
Radioactive Test Sample	6665-00-856-8235	Gamma	1
Radioactive Test Sample	6665-00-904-2283	Gamma	5
Calibrator Radiac Radioactive Test Sample	6665-00-973-1123	Alpha	3
Radioactive Test Sample	6665-00-997-6194	Gamma	5

C-2. POLICY. The inspection requirements cited herein form an integral portion of the coded inspection requirements contained within appendix A when referenced in the Test Required Code (TRC) column for the related line item. These requirements will be used in conjunction with the coded requirements to provide an effective surveillance inspection plan. This inspection plan identifies the minimum inspection efforts that need be expended to determine materiel serviceability with an acceptable confidence level. The user will not deviate from these requirements without prior permission from the Commander, US Army Armament, Munitions and

WARNING

All personnel who work with radioactive commodities must be made completely aware of the hazards or potential hazards that are introduced into their working environment by inclusion of radioactive materiel and of the applicable directives and procedures by which they may conduct their work safely. Refer to AR 700-64 for additional personnel, medical and training requirements.

b. *Specific Safety Precautions.* In addition to the standard precautions for handling the items listed in paragraph C-1, the following are mandatory minimum precautions for handling calibrators, test samples and source sets containing the Alpha sources. For items containing Beta and Gamma sources, subparagraphs (2) and (3) below are mandatory:

(1) Wear surgical type rubber gloves when handling the items. Exercise extreme care to avoid dropping the items as this may cause microscopic flaking of the radioactive deposit or other damage.

(2) Do not touch the active surface of the test items. Use tongs or other remoted control equipment when required.

(3) Wear a film badge and two pocket dosimeters.

(4) Wash hands thoroughly after handling sample.

(5) Do not eat, drink or smoke in a storage area containing radioactive material. All personnel participating in the surveillance testing of radioactive material must be monitored for contamination before leaving the area.

C-4. INSTRUCTIONS. a. *Reference.*
TM 3-220 Chemical, Biological, and Radiological (CBR) Decontamination

TM 3-221 Field CBR Collective Protection

TM 3-6665-214-13&P Operator's, Organizational and Direct Support Maintenance Manual Including Repair Parts List for Radioactive Source Set, M3A1 (NSN 6665-00-856-8235).

TM 3-6665-259-10 Operator's Manual: Radioactive Test Sample: Cesium 137, Gamma, M9 FSN 6665-997-6194.

TM 3-6665-264-10 Operator's Manual: Radioactive Test Sample, Krypton 85, Gamma MX7338/PDR-27R.

TM 11-1176 Radiac Calibrator Set AN/UDM-1.

TM 11-6665-208-15 Operator's, Organizational, Direct Support, General Support and Depot Maintenance Manual: Radiac Set, AN/PDR-54 (NSN 6665-00-542-1587).

TM 11-6665-217-15 Organizational, Direct Support, General Support and Depot Maintenance Manual: Radiac Calibrator Set AN/UDM- 1A.

TM 11-6665-221-15 Operator's, Organizational, Direct Support, General Support and Depot Maintenance Manual: Radiac Set, AN/PDR-60 (NSN 6665-00-965-1516).

TB 43-180 Calibration and Repair Requirements for the Maintenance of Army Materiel.

SB 740-1 Storage and Supply Activities Covered and Open Storage.

AR 700-64 Radioactive Commodities in the DOD Supply System (DSAM 4145.8).

AR 740-3 Care of Supplies in Storage

AR 385-11 Ionizing Radiation Protection.

b. Basis of Surveillance. Surveillance for the items listed in paragraph C-1 will be conducted on the basis of manufacturer's lot. In addition, all items must have the same year of manufacture, rebuild or modification.

c. Sampling. Sampling of lots shall be conducted in accordance with paragraph 2-4 of this bulletin and as follows: (1) Visual examination. Sample lots in accordance with MIL-STD-105 using the Inspection Level (IL) and Acceptable Quality Level (AQL) as specified in appendix A.

NOTE

It is permissible to select samples for end item visual examination from the sample obtained for visual examination for packaging, packing, marking and preservation.

(2) *For tests.* Sample lots in accordance with MIL-STD-105 using Inspection Level S-3 and an AQL of 1.5 percent defective. Randomly select the sample quantity from the visually acceptable portion of the sample obtained in (1) above. If the sample of visually acceptable items is of equal size as that required for testing, the entire sample shall be subjected to test. Should the sample of visually acceptable items be smaller than that required for testing, additional samples shall be selected from the lot.

C-5. Inspection Procedures. Samples shall be visually inspected for the packaging, packing, marking and preservation defects as identified in appendix A and table C-1. The end item sample shall be visually inspected for the end item defects identified in appendix A and table C1. The required samples for test, of visually acceptable items, shall be subjected to the tests identified in Table C-2 as applicable. Acceptance or rejection of the lot will be based on the acceptance number of the sampling plan paragraph C-4c(2). In addition to the inspections prescribed in appendix A and table C-1, the materiel shall also comply, where applicable, to AR 700-64 and to the applicable Licenses (listed below) issued by the Nuclear Regulatory Commission (NRC).

Table C-1. Classification of Visual Defects

Defects	Categories									Applicable to Source No.					
	Major	Minor	M3	M3A1	M6	M7	M8	M9	MX7338	T290	TS-1230A	AN/UDM1	AN/UDM-1A	AN/UDM6	AN/UDM-7B
a. Protective coating over radioactive deposit damage.	101				X	X	X		X		X				
b. Retaining Ring loose.	102								X						
c. Protective border missing or loose.	103						X				X			X	X
d. Components missing, damaged or deteriorated.	104		X	X	X	X	X	X	X	X	X	X	X	X	X
e. Sample damage or deformed.	105		X	X	X	X	X	X	X	X	X	X	X	X	X
f. Metal rod cracked, bent, plug loose.	106								X						
g. Evidence of flaking of radioactive deposit.	107				X	X	X				X			X	X
h. Replacement time exceeded.	108		X	X	X			X	X			X	X		
i. Marking on inactive side of sample missing, illegible, or incorrect. The following as applicable, must be present:	109														
(1) Nomenclature.			X	X	X	X	X	X	X		X	X	X	X	X
(2) Activity.			X	X	X	X	X	X	X		X	X	X	X	X
(3) Type of emission.					X	X	X				X			X	X
(4) Date of manufacture.			X	X	X	X		X	X		X			X	X
(5) Danger radioactive material.			X	X	X	X	X	X	X		X	X	X	X	X
(6) If found notify military authority.			X	X	X	X		X	X		X			X	X
j. Radiation symbol on active side missing.	110		X	X	X	X		X			X	X	X	X	X
k. Serial No. missing. (See DMWR or TM).	111		X	X	X			X	X	X	X	X	X	X	X
l. Coloring damaged, faded, deteriorated.	112		X	X	X	X	X	X	X	X	X	X	X	X	X
m. Contamination (dirt, grease, etc.)	113		X	X	X	X	X	X	X	X	X	X	X	X	X

Table C-2. Tests

Test	Ref. to Para	Applicable to Source No.													
		M3	M3A1	M6	M7	M8	M9	MX-7338	T290	TS-1230A	AN/UDM1	AN/UDM-1A	AN/UDM6	AN/UDM-7B	
Activity	C-5b(1)	X	X				X	X			X	X			
Leakage/Contamination	C-5b(2)			X	X	X				X			X	X	
	C-5b(3) & C-5b(4)	X	X				X	X			X	X			
	C-5b(5)	X	X				X	X			X	X			

- | | | |
|---|------------------|-------------------------------------------------------------------------------------------------|
| 1 | BML 12-00-722-11 | Cobalt-60 as Calibration Sources Designated M1A1 Assembly |
| 2 | SNM 1631 | Plutonium-239 as Alpha Calibration Sources Components of AN/UDM 7B Radiac Calibrator |
| 3 | SNM 1745 | Plutonium-239 as Alpha Calibration Sources Components of AN/UDM-6 and TS1230A Radiac Calibrator |
| 4 | SUB 1340 | Source Material License for Uranium 238 in the form of U308 |
| 5 | User License | |

a. Classification of Defects for End Items. Refer to Table C-1. Defects other than those listed in appendix A and table C1 will be reported. Serviceability will be withheld pending investigation by Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-QAF, Rock Island, IL 61299 to determine the proper defect category in which the unlisted defect belongs.

b. Tests. The samples shall be subjected to the applicable tests as shown in table C-2.

(1) *Activity test.* The radioactive item shall be tested using a calibrated scintillation or Geiger-Mueller probe connected to a scaler or spectrometer. Each radioactive item shall be numbered and the activity level recorded.

(2) *Leakage from source containing Alpha emitters.*

(a) Requirements.

1. If the instrument meter indicates 900 counts per minute (CPM) alpha or more above background, the source set should be considered unserviceable until smear paper is evaluated with laboratory counting equipment.

2. If the instrument meter indicates less than 900 CPM alpha, the source can be used pending laboratory evaluation of the smear paper.

3. Laboratory evaluation of the smear paper shall be performed in accordance with paragraph C-5b(4).

(b) Equipment required.

1. Calibrated AN/PDR-54 (NSN 666500-542-1587) or AN/PDR-60 (NSN 6665-00965-1516) Radiac Set.

2. Disposable surgical type gloves.

3. High-wet-strength filter paper, paper towel or similar absorbent paper.

(c) Procedures.

1. Wear disposable gloves. Cut discs one inch in diameter from the high-wet strength paper or similar absorbent type paper. Mark one 'side of each smear paper disc for identification. Moisten smear paper disc with water.

2. Use unmarked side of moistened paper disc to smear source frame, jigs, mask and inside of case.

CAUTION

DO NOT SMEAR RADIOACTIVE SURFACE. A smear disc wrapped around the blunt end of a pencil or similar object may be used to smear the inside of the case. (Dispose of pencil or other object used as radioactive waste.) 3. Lay a clean sheet of paper or plastic on a smooth horizontal surface. Place smear paper discs, unmarked side up, on papered surface and allow to dry.

4. Flatten the dried smear paper discs.

5. Using a calibrated AN/PDR-54 or AN/ PDR-60 Radiac Set, monitor the smear paper discs. (Monitoring procedures are given in TM 11-6665208-15 for AN/PDR-54 and in TM 11-6665-22115 for AN/PDR-60).

6. Dispose of the protective paper or plastic sheet and gloves as radioactive waste. Monitor the surfaces used and decontaminate as necessary.

(3) Leakage from sealed sources, Beta-Gamma emitters.

(a) Requirements.

1. MX7338 (NSN 6665-00-832-6159) source only: With the meter of the AN/PDR-27 () radiac meter set on the 50 MR/hr scale the meter reading should be at least 10 milliroentgen per hour (MR/hr). If the meter reading is less than 10 MR/hr, the source is unserviceable and should be disposed of in accordance with TM 3-6665-264-10.

2. The leakage requirement for the other sources will be as stipulated in the applicable technical manual for the item being tested:

M3A1-TM 3-6665-214-13&P

M9-TM 3-6665-259-10

AN/UDM-1-TM 11-1176

AN/UDM-1A-TM 11-6665-217-15

3. Laboratory evaluation of the smear papers from the leakage tests shall be performed in accordance with paragraph C-5b(4).

(b) Equipment required.

1. Calibrated AN/PDR 27 () radiac meter.

2. Disposable surgical type gloves.

3. High-wet-strength filter paper, paper towel or similar absorbent paper.

(c) Procedure.

WARNING

High radiation can be expected. Wear, as a minimum, a film badge, a calibrated dosimeter and disposable surgical-type rubber gloves while performing leak test. Do not leave the unshielded radioactive source, the opened assembly or opened case unattended.

1. Inspect the MX7338 source for serviceability in accordance with the instructions provided in TM 3-6665-264-10.

2. Wipe test the source sets (except MX73381 in accordance with the procedures specified in the applicable technical manual for the item being tested.

(4) *Wipe test evaluation.*

(a) For the AN/UDM-1A calibrator set, evaluate the smear paper from the wipe test in accordance with the instructions in TM 11-6665-217-15. For the AN/UDM-1 calibrator set, evaluate the smear paper in accordance with the instructions in TM 11-1176.

(b) For sources other than the AN/UDM1A and the AN/UDM-1 calibrators.

1. If laboratory equipment capable of accurately measuring 0.001 microcurie is available, have the smear paper evaluated locally.

a. If the laboratory evaluation detects activity of less than 0.005 microcuries, the source is serviceable from a contamination standpoint.

b. If the laboratory evaluation detects activity of 0.005 microcuries or greater, the source is unserviceable (contaminated): (1) Move the item to a separate controlled area and secure against further use and spread of contamination.

(2) Notify local Radiation Protection Officer of evaluation results and coordinate relocation actions with him.

(3) Request instructions for disposal as radioactive waste (AR 385-11) from Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAD-GC, Rock Island, IL 61299.

(4) Dispose of smear papers and rubber gloves as contaminated waste.

(5) Perform a radiation/contamination survey in the immediate area where the item has been stored or used and decontaminate as necessary.

2. If suitable laboratory equipment is not available locally, mail the smear samples to the nearest Nucleonics Primary Standards Laboratory.

NOTE

The supporting Nucleonics Primary Standard Laboratory for the states of Minnesota, Iowa, Missouri, Arkansas, Louisiana, the area east of these states and USAREUR is at Lexington-Bluegrass Army Depot; the supporting Nucleonics Primary Standards Laboratory for the remainder of CONUS and for USARPAC is Sacramento Army Depot.

a. Depot personnel will evaluate the smears and notify the requesting element of the results.

b. Smear evaluation results reported by the Depot Laboratories will determine serviceability in accordance with the criteria in para (4)(b)1. above.

c. Dispose of unserviceable items, survey the area and decontaminate as necessary in accordance with para (4)(b)1.(b). above.

3. If any smear evaluations reveal the presence of 0.005 microcuries of removable contamination on the items, notify by teletype Commander, US Army Armament Material Readiness Command, ATTN: DRSAR-SF (RPO), Rock Island, IL 61299 describing item(s) involved, smear evaluation results and follow on actions taken.

(5) *Shielding.*

(a) *Requirement.* The dose rate at the surface of the outer shipping container shall not exceed 200 milliroentgen per hour (MR/Hr). The dose rate at 1 meter from the surface of the outer shipping container shall not exceed 10 MR/hr.

CAUTION

If either of the above requirements is exceeded, it is an indication of faulty or insufficient shielding. The items must be repacked, using additional shielding, or less items per shipping container, before shipment can be made. After each repacking, the shielding test must be repeated to insure compliance with transportation requirements.

(b) *Equipment required.* Calibrated GM meter or calibrated chamber survey meter.

(c) *Procedure.* Radioactive sources, as packed in their original shipping containers, are taken one container at a time to an area previously checked and found to have a background not exceeding 1 MR/hr. Using a calibrated GM meter or a calibrated chamber survey meter, determine the maximum dose rate at the surface of the outer shipping container and also at 1 meter from the surface of the outer shipping container. Record the results.

C-6. Reports and Reporting. a. In reference to the reports and reporting required by paragraph 2-9 of this bulletin the following exceptions apply to the general instructions for preparation of the Munitions Surveillance Report (DA Form 984, 1 Jun 80), Part II Results of Surveillance Test::

(1) *Block 9b.* Cite the serial number (where applicable) of each sample item subjected to inspection and/or test. Also cite the month and year of manufacture of light source(s). This may be obtained from the item radioactive material label.

(2) *Block 10.* The following shall be cited: (a) Column a. Type of source(s) or isotope i.e., alpha, gamma, etc. This may be obtained from the item radioactive material label.

(b) *Column b.* Microlambert level of the light source(s) at the time of manufacture. This may be obtained from the item radioactive material label.

(c) *Column c.* Microlambert level of light sources(s) at time of inspection and/or test per TRC-4GA.

(d) *Column d.* Notation of "X" in event light source is physically damaged.

(e) *Column e.* Notation of "X" in event item radioactive material label is missing.

b. In addition to the normal distribution of above reports, if a source is found to be leaking as determined by tests (para C-5b(5)) forward one copy of each report to the Commander, US Army Armament Material Readiness Command, ATTN: DRSAR-SF, Rock Island, IL 61299.

C-7. Special Instructions. a. *Equipment Calibration.* Prior to an inspection operation or test, all measuring devices that require calibration will be inspected to verify that the calibration interval and equipment limits have not been exceeded. (See TB 43-180.)

b. *Marking After Inspection.* Inspected material will be marked with appropriate inspection/test markings.

c. *Care of Supplies in Storage.* Refer to AR 740-3.

By Order of the Secretary of the Army:

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

E. C. MEYER
General, United States Army
Chief of Staff

Distribution:

To be distributed in accordance with DA Form 12-34, SB 740 Series requirements for Storage and Serviceability Standards.

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 decagram = 10 grams = .35 ounce
 1 hectogram = 10 decagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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PIN: 044110-001