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**Medical Command**

**CONTROL OF IONIZING RADIATION**



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This instruction establishes local procedures for the maintenance of a viable Ionizing Radiation Control Program for the 94 Airlift Wing (94 AW) at Dobbins ARB, Georgia. Bioenvironmental Engineering Services (BES), under the direction of the 94 AW Base Radiation Safety Officer (BRSO), ensures that radiation safety procedures and measures are observed in environments where potential radiation hazards exist and that radiation exposures are As Low As Reasonably Achievable (ALARA). The prescribing directives for this publication are outlined in AFD 40-2, *Radioactive Materials (Non-Nuclear Weapons)*.

**SUMMARY OF REVISIONS**

There are significant changes throughout publication, review instruction in entirety. Emergency procedures were added. A bar ( | ) indicates revisions from the previous edition.

**1. REFERENCES:**

- 1.1. AFD 40-2, *Radioactive Materials (Non-Nuclear Weapons)*.
- 1.2. USAFOEHL Report 85-144RI111HXA, *Ionizing Radiation Guide Book for Bioenvironmental Engineers (BEEs)*.
- 1.3. AFI 40-201, *Managing Radioactive Materials In The USAF*
- 1.4. Title 10, *Code of Federal Regulations*, (10 CFR).
- 1.5. AFI 48-125, *The US Air Force Personnel Dosimetry Program*.
- 1.6. AFI 48-148, *Ionizing Radiation Protection*.

**2. ALARA :** Current Air Force policy dictates that all ionizing radiation exposures be kept to an absolute minimum. The following paragraphs outline the procedures used to determine if equipment is operating

and being operated in a manner that will minimize exposure. Even when equipment is operating at peak efficiency, poor procedures, short cuts, etc. can result in unnecessary exposure. Keeping this in mind, all surveys must include a review of the shop's OIs and Standard Operating Procedures (SOPs) to ensure that procedures are established to minimize exposure. Shop operating practices involving exposure to ionizing radiation must be observed whenever possible to ensure that shop personnel understand basic radiation safety and follow all established safety procedures. Comments must be included in all reports addressing the adequacy of radiation safety procedures and individual compliance with those procedures.

### 3. RESPONSIBILITIES:

3.1. The BRISO is responsible for ensuring the completion of all surveys and training mentioned in this instruction. The BRISO or his/her designee will perform the surveys and maintain the data IAW the format established by this instruction.

3.2. The Permit Radiation Safety Officer (Permit RSO) is responsible for the management of the permitted material licensed under the applicable permit.

**4. RADIOACTIVE MATERIAL STORAGE AREA PROCEDURES:** Radioactive material storage areas fall into two categories: restricted and unrestricted. Currently there are three unrestricted radioactive storage areas on Dobbins.

4.1. Restricted Storage Area. A restricted storage area has stored radioactive materials with radiation intensities greater than or equal to 2 mR/hr at 1 foot from the container. A restricted storage area must be surveyed quarterly. There are no restricted storage areas on Dobbins at this time.

4.2. Unrestricted Storage areas. An unrestricted storage area has radioactive material stored that emits less than 2 mR/hr at 1 foot from the container (Ref T.O. 00-11-N-3, Paragraph 11). A survey of all unrestricted storage areas (Para 9.) will be conducted annually, concurrent with the annual industrial hygiene survey. Documentation of the survey will be made on the AF Form 2758, **Industrial Hygiene Survey Data Sheet**. As a minimum the following areas must be addressed:

4.2.1. No container in the storage area emits 2 or more mR/hr at 1 foot from the container surface.

4.2.2. No photographic film stored within 50 feet of the area.

4.2.3. An Operating Instruction (OI) or Radioactive Material Permit (RAM) exists which details procedures for proper handling.

4.2.4. Cleanup and disposal of broken items containing radioactive materials must be coordinated through the BRISO prior to the beginning of the cleanup. Cleanup and disposal is the responsibility of the owning organization. Notification of the spill must be made immediately by calling ext 9-5781 or ext 9-5991.

### 5. INCOMING/OUTGOING RADIOACTIVE MATERIAL SURVEYS:

5.1. T.O. 00-110N-3, Paragraph 9 requires the inspection of all incoming packages containing radioactive materials by a qualified individual. Items destined for Dobbins ARB arrive at Base Supply. Base Supply will notify BES who will perform a radiological survey.

5.2. Upon notification by 94 LG/LGTT (BOS Contractor) or 94 LG/LGS (BOS Contractor) that a package containing radioactive material (RAM) has arrived or is packaged to depart Dobbins ARB, the following steps must be made to ensure that the RAM is handled properly:

5.2.1. Shipping of non-permitted RAM: The BRSO or designee will be dispatched to survey the package upon notification from TMO. The individual performing the survey will note the contents of the package and the maximum emission rate after surveying all sides of the package. The measurements will be taken directly from the surface of the sealed package by the appropriate radiation meter. Additional readings will be taken by a swipe sample and then read with the appropriate radiation meter. (Consult the IERA Radioanalytical Guide for swipe instructions.) If the maximum emission rate or removable contamination levels are exceeded, the package will either be repackaged by the shipper until the levels are not exceeded or the RAM can be shipped under the special procedures outlined in 49 CFR 173. These procedures will be monitored by TMO. Unless otherwise directed, the maximum emission rate is 0.5 millirem per hour (mR/hr) and the removable contamination level is 20 disintegrations per minute (dpm). All parts of the survey will be documented completely by the individual performing the test. If the survey is not performed by the BRSO then it must be reviewed by the BRSO. This documentation will be filed in the appropriate owning shop's case file or in the Ionizing Radiation Binder 10A if the RAM does not apply to a specific case file.

5.2.2. Receipt of non-permitted RAM: The BRSO or designee will be dispatched to survey the package upon notification from Base Supply that the RAM has been received. Base Supply must notify the BRSO or designee within 3 hours of receipt of the RAM in order to meet the time constraints of 10 CFR 20. The survey of the RAM will be conducted the same as the shipping of the RAM listed in section 5.2.1. Appropriate action will be taken if it appears the package was improperly shipped IAW 49 CFR 173.

5.2.3. Shipping and receipt of permitted RAM: Personnel owning a RAM Permit must follow the permit's requirement and contact the BRSO prior to shipping or within 3 hours of receiving the permitted RAM.

5.3. Prior to ordering any radioactive material in any quantity, approval must be received from the BRSO. This includes permitted and non-permitted materials.

5.4. To take RAM off of Dobbins ARB must be done in accordance with the guidance provided by the State of Georgia. Contact the BRSO at ext 5-5781 prior to taking any RAM off of the installation.

## 6. SWIPE SAMPLES:

6.1. All sources, which require swipe testing as a part of a radioactive material (RAM) permit will be swiped, semiannually by the permit owning organization. The owning organization will take the swipe samples and mail them to (AFIERA/SDRR) per the applicable end item T.O. Upon receipt of the results, the shop will send a copy of the results to the BRSO.

6.2. The BRSO or his/her designate will review the swipe results.

## 7. MEDICAL, SECURITY AND INDUSTRIAL X-RAYS:

7.1. Annual radiation survey of the Non-Destruction Inspection (NDI) Shop will be scheduled to coincide with the annual industrial hygiene survey. Sites are to include the NDI shop, B-741, Fuel Cell Shop, B-731 and the Phase Dock hangar, B-747. This survey will use the checklists and forms prescribed in the Ionizing Radiation Guidebook for Bioenvironmental Engineers (BEEs) OEHL Report 85-144RI111NXA or equivalent. Also consult the guidebook for additional information. **NOTE:** A general survey will be conducted annually, however measurements will be conducted once every 3

years. During the NDI survey, operating procedures will be examined to ensure they are consistent with ALARA.

7.2. Our medical x-ray facilities are owned and surveyed by the Naval Air Station Atlanta. During the 18 months survey of the 94 ASTS, the BRSO will obtain a copy of the latest radiological survey of the equipment used by the 94 ASTS. 94 ASTS x-ray personnel use the equipment on the UTA.

7.3. Annual ionizing radiation training will be conducted annually for the 94 ASTS (reserves) and for the 94 MXS/LGMF. This training will be maintained in the ionizing radiation training binder for one year. Training will be provided by the Base RSO, the Alternate Base RSO or personnel trained by the BRSO.

## 8. CONTRACTOR USE OF RADIOACTIVE MATERIAL ON DOBBINS ARB, GA:

8.1. The 94 AW/CC has designated the RSO or his/her alternate approval authority for bringing radioactive material onto Dobbins ARB. This authority is limited to those sources of radioactive material that have a low probability of causing public exposures greater than 2mR/hr. Bringing radioactive material onto Dobbins ARB that does not meet this limitation must have the approval of the 94 AW/CC.

8.2. The Base or Alternate RSO must approve Contractor use of radioactive material at least 15 days prior to bringing the equipment on base.

8.3. When a contractor brings radioactive material onto Dobbins, the site in which the contractor is using the material will be visited at least once to ensure the contractor is not endangering personnel. Results of the survey will be documented by Memo For Record, filed in the ionizing radiation binder 9F and a copy sent to 94 LG/LGC.

## 9. STORAGE AREAS FOR UNRESTRICTED RADIOACTIVE MATERIAL (RAM).

9.1. Building 838 - Disaster Preparedness, 94 CES/CEX. Permitted RAM. CAM and M8 Alarm.

9.2. Building 727 - Life Support, 700 AS/DOOL. Storage of lensatic compasses allowed only (Tritium (H3)). The compasses are non-permitted RAM.

9.3. Building 922 - Bioenvironmental Engineering Services, 94 SPTG/SGPB. Permitted RAM. XRF Lead Analyzer.

## 10. RECORD KEEPING:

10.1. For items involving the RAM permitted material, consult the RAM permit. The RAM permit is located in the 94 CES industrial hygiene case file in Tab C, part 4 and in the radiation binder 10A. The entire application package is also located in radiation binder 10A.

10.2. Training documents for the 94 ASTS and 94 MXS/NDI must be kept for the working lifetime of the trained personnel. These records will be kept in part 2 of Tab F of the applicable industrial hygiene case file.

10.3. TLD records will be maintained in accordance with AFI 48-125, *The US Air Force Personnel Dosimetry Program*. The TLD forms are kept at the BRSO's desk (AF Form 1523, **The Personnel Dosimetry Listing**.) and in radiation binder 10A for the AF Form 1499, **Current Occupational Dosimetry Exposure**.

10.4. Records involving the investigation of radiation incidents/accidents will be maintained in the applicable case file in the Privacy Act Folder in Tab F.

#### **11. EMERGENCY PROCEDURES :**

11.1. When personnel feel that they have been exposed to ionizing radiation during an industrial process, they are to contact their supervisor immediately. The supervisor in turn will contact the BRSO at ext 9-5781, their unit safety officer and send the exposed personnel for medical evaluation at the appropriate medical facility.

11.2. The BRSO will interview all personnel involved in the incident and reconstruct the scenario with the assistance of all involved. The reconstruction will help to determine the intensity and duration of the exposure. The survey will be conducted by the BRSO or radiation specialist from AFIERA/SDRR, Brooks AFB, TX depending on the scenario. Reports on the incident will be filed with the appropriate agencies.

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Commander