

**BY ORDER OF THE COMMANDER,
15TH AIRLIFT WING**

15TH AIRLIFT WING INSTRUCTION 48-102

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Aerospace Medicine

**IONIZING RADIATION PROTECTION
PROGRAM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFD 48-1, *Aerospace Medicine Program*, and defines guidelines, responsibilities, procedures, and precautionary measures for the control of ionizing radiation sources, consistent with Air Force Occupational Safety and Health (AFOSH) standards. It does not apply to non-ionizing radiation, radio-frequency or laser radiation, and patient care or combat related exposures. Air Force policy is to keep all ionizing radiation exposures As Low as Reasonably Achievable (ALARA). This instruction implements the ALARA concept by establishing a program that incorporates current radiation protection requirements and additional management controls, outlining procedures for the control of ionizing radiation sources and associated hazards to safeguard workers health, while permitting maximum benefits from radiation sources. Compliance with this instruction is mandatory for all organizations and persons covered by the 15 AW Occupational Health Program. Section 12 of this instruction applies to all organizations and persons, including contractors, conducting operations involving ionizing radiation sources on 15 AW property. This Airlift Wing Instruction is derived from documents listed as references, in the event of a conflict with an Air Force Instruction, defer to the higher guidance.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

Updated information to acknowledge change from 15 Air Base Wing to 15 Airlift Wing. Added new requirements of AFI 48-148, *Ionizing Radiation Protection*. Added/updated references for NRC Information Notices and Bulletins. Updates procedures for investigating over exposures and abnormal exposures to ionizing radiation, introduced new terminology, revised procedures for collecting and processing bioassay samples, implemented policy for accomplishing planned special exposures, and clarified guidelines. Major reorganization of document sections; content reorganized for readability. Other minor changes made to reflect current policies and references.

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AFI 10-2501, *Full Spectrum Threat Response (FSTR) Planning & Operations*, 24 Dec 02

AFI 40-201, *Managing Radioactive Materials in the U.S. Air Force*, 01 Sep 00

AFI 48-125, *The US Air Force Personnel Dosimetry Program*, 01 Mar 99

AFI 48-148, *Ionizing Radiation Protection*, 12 Oct 01

AFI 91-204, *Safety Investigations and Reports*

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*

AFJMAN 24-204(I), *Preparing Hazardous Materials for Military Air Shipment*, 11 Dec 01

AFOSH Std. 91-10, *Civil Engineering*

AFPD 40-2, *Radioactive Materials (Non-Nuclear Weapons)*, 08 Apr 93

DODI 6055.11, Department of Defense Instruction, *Protection of DOD Personnel from Ionizing Radiation*, 21 Feb 95

10 CFR, Energy, Part 19, *Notices, Instructions, and Reports to Workers: Inspections and Investigations*; Part 20, *Standards for Protection Against Radiation*; Part 30, *Rules of General Applicability to Domestic Licensing of Byproduct Material*; Part 31, *General Domestic Licenses for Byproduct Material*; Part 40, *Domestic Licensing of Source Material*; Part 61, *Licensing requirements for land disposal of radioactive waste*, Part 71, *Packaging and transportation of radioactive materials*

29 CFR, Occupational Safety and Health Administration (OSHA), Part 1910.1096, *Ionizing Radiation*, Part 1926.53, *Ionizing Radiation*, Subpart D, *Occupational Health and Environmental Controls*

49 CFR, Department of Transportation: Part 171, *General Information, Regulations, and Definitions*; Part 172 *Hazardous Material Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements*; Part 173, *Shippers – General Requirements for Shipments and Packagings*

T.O. 33B-1-1, *Nondestructive Inspection Methods*

Chapter 2

RESPONSIBILITIES

2.1. Installation Commander (15 AW/CC) will:

- 2.1.1. Appoint, in writing, a qualified individual to be Installation Radiation Safety Officer.
- 2.1.2. Direct all organizations desiring to use ionizing radiation on the installation to obtain authorization from the Installation Radiation Safety Officer.
- 2.1.3. Support the ALARA concept and ensure subordinate units follow the direction of this instruction and the Installation RSO.

2.2. Installation Radiation Safety Officer (RSO) (15 ADS/SGGB) will:

- 2.2.1. Establish and manage an installation-wide radiation protection program through this instruction.
- 2.2.2. Keep the installation commander informed about radiation health and safety issues and effectiveness of measures to control ionizing radiation hazards.
- 2.2.3. Identify units that require a Unit Radiation Safety Officer (RSO) and Thermoluminescent Dosimetry Program.
- 2.2.4. Provide consultant support to the installation commander, unit commanders, Unit RSOs, and workplace supervisors on radiation protection issues.
- 2.2.5. Assist Unit RSOs as necessary to ensure comprehensive unit radiation protection programs are established, including receipt, use, storage and disposal of radioactive materials.
- 2.2.6. Perform initial and periodic hazard evaluations of radiation sources.
- 2.2.7. Define health hazards, define hazardous areas, and recommend proper control measures to commanders and users.
- 2.2.8. Inform the 15 AW/CC, fire department, and civil engineering readiness flight of non-Air Force uses of radioactive materials on the installation.
- 2.2.9. Oversee the Base Thermoluminescent Dosimetry Program.
- 2.2.10. Conduct or arrange for investigations of suspected ionizing radiation overexposures.
- 2.2.11. Ensure all personnel who use or operate radiation sources are trained in accordance with AFI 48-148.
- 2.2.12. Assist civil engineering to ensure the adequate design of facilities that will contain radiation sources.

2.3. Thermoluminescent Dosimetry (TLD) Program Manager:

- 2.3.1. Conducts the daily operation of the TLD program to monitor exposures of personnel working with ionizing radiation sources.
- 2.3.2. Maintains TLD program documentation.

2.3.3. Investigates exposure monitoring results above the investigation action level.

2.4. Civil Engineering (15 CES/CC) will:

2.4.1. Ensure designs for new or modified facilities that house ionizing radiation activities follow AFI 48-148, section 3.2, guidelines and are approved by the Installation RSO.

2.4.2. Develop plans for response to major accidents, enemy attack and terrorist use of weapons of mass destruction involving nuclear or radiological materials consistent with ALARA and AFI 48-148 dose limit guidance.

2.4.3. Assist the Installation RSO conduct radiation surveys to evaluate the extent and nature of the radiological hazards during contingency operations.

2.4.4. Manage and control radioactive wastes generated during contingency actions.

2.5. Contracting Squadron (15 CONS) will:

2.5.1. Ensure all contract specifications identify requirements for Installation RSO approval to bring ionizing radiation sources on AF property.

2.5.2. Inform contractors during post-award conferences about approval procedures.

2.5.3. Coordinate Installation RSO approval for contractor use of ionizing radiation sources on AF property.

2.6. The 15th Logistics Readiness Division, Cargo Movement (15 LRD/LGRDC) and the 735 Air Mobility Squadron, Air Freight Section (735 AMS/TRK) will coordinate all activities involving radioactive material shipment off or onto Hickam property with the Installation RSO.

2.7. The 15th Medical Group Commander (15 MDG/CC) will:

2.7.1. Ensure a medical team, including a qualified physician, Bioenvironmental Engineer, and Public Health Officer, oversee required medical surveillance of personnel exposed to ionizing radiation through the Occupational Health Working Group.

2.7.2. Ensures all suspected radiation overexposures are investigated and properly documented by Bioenvironmental Engineering and Public Health.

2.8. The Public Health Flight (15 ADS/SGGM) will:

2.8.1. Coordinate pregnancy profile evaluations for declared pregnant workers working with or around ionizing radiation sources.

2.8.2. Refer pregnant workers to Bioenvironmental Engineering for possible entry into the TLD monitoring program.

2.8.3. Prepare and distribute AF Form 190, Occupational Illness/Injury Report for suspected ionizing radiation overexposures.

2.9. Commanders of Units with Radioactive Material or Ionizing Radiation Producing Devices will:

2.9.1. Enforce radiation protection policies and programs outlined in this instruction.

2.9.2. When required by this instruction, appoint a Unit RSO or Permit RSO, and forward a copy of all appointment letters to the Installation RSO.

2.9.3. Ensure a unit radiation safety operating instruction is developed by workplace supervisors.

2.9.4. Provide adequate facilities, equipment and resources for radiation protection and safety.

2.9.5. Ensure suspected ionizing radiation overexposures are reported to the Installation RSO.

2.10. Unit Radiation Safety Officer (RSO) will:

2.10.1. Establish and manage the organization or unit radiation safety program.

2.10.2. Oversee and assist supervisors develop unit radiation safety operating instructions and training plans.

2.10.3. Keep the unit commander and the Installation RSO informed about radiation health and safety issues and effectiveness of measures to control ionizing radiation hazards.

2.10.4. Assist in suspected overexposure investigations.

2.10.5. Retain records regarding the receipt, use, transfer, and disposal of radioactive materials.

2.10.6. Maintain active liaison with the Installation RSO as point of contact for unit radiation safety matters.

2.11. Supervisors (with ionizing radiation sources) will:

2.11.1. Develop and keep current a unit operating instruction.

2.11.2. Coordinate Installation RSO authorization for radioactive material/ionizing radiation producing device(s) and shipment of radioactive material.

2.11.3. Maintain an inventory of all radiation sources showing shipping receipts, quantities on hand, and items disposed.

2.11.4. Ensure workers are properly trained in safe work practices and are told about specific hazards in their work place and procedures to be followed to avoid hazards.

2.11.5. Notify the Installation and Unit RSOs of any changes to workplace practices, equipment, operating parameters, or facility design.

2.11.6. Maintain all unit radiation protection survey reports, swipe sample results, and other radiation safety documentation.

2.11.7. Follow operating, storage, disposal, and shipping guidance in this instruction.

2.11.8. Notify the Unit and Installation RSO of potential violations of this instruction, of unsafe work practices involving radiation sources, or of accidents or incidents involving radiation.

2.11.9. Ensure workers with declared pregnancy notify their primary care manager.

2.12. Workers will:

2.12.1. Follow procedures for safe work practices given in equipment technical orders/manuals and unit operating instructions (OI).

2.12.2. Ensure required warning signs and safety devices are in place and properly set before beginning work and that everyone understands procedures and signals to be used for tasks being done.

2.12.3. Properly use thermoluminescent dosimeters and other personal protection equipment.

2.12.4. Review their thermoluminescent dosimetry results and report any errors noted to the Installation RSO.

2.12.5. Comply with Commander directed radiation protection programs, dose assessment programs and radiological health surveillance.

2.12.6. Provide to the unit or installation RSO such information on their past and current work as is relevant to ensure effective and comprehensive protection and safety for themselves and others. This includes work outside the USAF where they may also incur radiation exposures (IAW 10 CFR 20.2104)

2.12.7. Notify workplace supervisors of potential violations of this instruction, of unsafe work practices involving radiation sources, or of accidents or incidents involving radiation.

2.13. Military personnel shall immediately notify their workplace supervisor and their primary care manager as soon as they are aware they may be pregnant.

2.14. Civilian workers are strongly encouraged to notify their workplace supervisor and Public Health as soon as they are aware they may be pregnant. They should arrange for a confirmatory pregnancy test from their private primary care physician and refer the test results to Public Health, however they have the option to not declare their pregnancy and accept the risk associated with ionizing radiation exposure to their unborn child.

Chapter 3

AUTHORIZATION FOR IONIZING RADIATION SOURCES

3.1. All organizations and persons (including government agencies, contractors, visitors, etc) will obtain written approval from the Installation RSO before bringing ionizing radiation sources on to Hickam AFB property, with the following exceptions:

3.1.1. Radioactive material/devices in Department of Transportation compliant shipments in-transit to a final destination off Hickam AFB property.

3.1.2. Radioactive material/devices installed in/on operating aircraft transient to Hickam AFB.

3.2. Organizations and persons not covered by the 15 AW Occupational Health Program, such as contractors and other government agencies, will submit a request to bring radioactive material or radiation producing devices to the Installation RSO 30 days in advance, using the appropriate request template (attachment 1 for radioactive material (15 AW Form 52), attachment 2 for radiation producing devices (15 AW Form 53)).

3.2.1. The Installation RSO will review the request and identify any additional information needed to the requesting organization.

3.2.2. The Installation RSO will sign approved requests and provide a copy to the requesting organization.

3.2.3. The Installation RSO will notify the 15 AW Commander, 15 CES/CEF, and 15 CES/CEX about the approved radioactive material use on Hickam AFB via email message.

3.3. Organizations covered by the 15 AW Occupational Health Program (15 AW units and tenants with applicable host-tenant support agreements) will obtain a written radioactive material/radiation producing device (RAM/RPD) approval from the Installation RSO before ordering, obtaining, accepting, or using ionizing radiation sources. (Exception: Qualified transportation management organizations may accept shipments containing radioactive material without prior approval, following the receiving procedures outlined in [Chapter 10](#).)

3.3.1. Workplace supervisors will prepare a RPD or RAM request as applicable (attachment 3 for radiation producing devices (15 AW Form 54), attachment 2 for a Radioactive Material Use Authorization Request (15 AW Form 53)) for all new ionizing radiation sources (material or equipment) not covered by an existing approval and submit the request to the Installation RSO.

3.3.2. The Installation RSO will determine if the source(s) are exempt or require a permit/license.

3.3.3. For sources that require an AF Radioactive Material Permit:

3.3.3.1. The Installation RSO will assist the supervisor prepare a permit application to HQ AFMOA/SGZR.

3.3.3.2. The unit commander (squadron commander equivalent) will appoint qualified individuals to be the Permit RSO/alternate. (When units do not have personnel meeting the education or experience requirements of AFI 40-201, unit commanders may request 15 ADS/CC allow 15 ADS/SGGB to act as the Permit RSO).

3.3.3.3. A signed HQ AFMOA/SGZR AF Radioactive Material Permit will constitute written approval by the Installation RSO for acquisition/use of radioactive material as outlined in the permit.

3.3.4. For sources that are generally licensed by the NRC:

3.3.4.1. The Installation RSO will assist the supervisor prepare a generally licensed device registration application to HQ AFMOA/SGZR.

3.3.4.2. A signed HQ AFMOA/SGZR confirmation of registration letter will constitute written approval by the Installation RSO for acquisition/use of radioactive material as outlined in the registration application.

3.3.5. For exempt sources and radiation producing devices, the Installation RSO will indicate that the material is exempt for permit/license requirements and sign the RAM/RPD request as written approval for acquisition/use of radioactive material as outlined in the request.

3.3.6. The Installation RSO will maintain a record of all approved ionizing radiation sources on base.

Chapter 4

IONIZING RADIATION EXPOSURE EVALUATION

- 4.1. The Installation RSO will conduct or direct a special survey evaluation of each approved use of radioactive material or radiation producing devices for potential occupational and public exposure in accordance with AFI 48-145.
- 4.2. The Installation RSO will evaluate individual exposures for any occupationally exposed pregnant workers or workers under the age of 18 to determine if additional control or monitoring is required for the individual.
- 4.3. The Installation RSO will ensure that occupational and public exposure estimates are documented in the Command Core System database and associated with the applicable potential exposure group that maintains the radiation source.
- 4.4. The Installation RSO will provide Unit Commanders, supervisors, and workers a written report summarizing the control measures needed to keep exposures ALARA and adequately protect workers and the public from exposures above the dose limits outlined in AFI 48-148. Unit Commanders will ensure Installation RSO exposure control recommendations are implemented.
- 4.5. The Installation RSO will add workplaces with ionizing radiation sources to the Bioenvironmental Engineering routine surveillance schedule for periodic reassessment of activities and health risks.

Chapter 5

EXPOSURE MONITORING (THERMOLUMINESCENT DOSIMETRY (TLD) PROGRAM)

5.1. The Installation RSO will identify workplaces where radioactive material or radiation producing device use has the potential to expose radiation workers above 10% of the annual dose limit and direct Thermoluminescent Dosimetry (TLD) Program monitoring as a control for the exposure group. The installation RSO will also direct TLD Program monitoring for pregnant workers or workers under the age of 18 who are likely to exceed the limits identified in AFI 48-125.

5.2. The Installation RSO will define the type of TLD monitoring (whole body, collar, etc), monitoring frequency, and Investigation Action Level for each exposure group (or individual) and document the rationale for these decisions in the appropriate Command Core System database risk assessment.

5.3. The Installation RSO will provide unit commanders, Unit RSOs (where applicable), and workplace supervisors a written report outlining the TLD monitoring requirements for their workplace, or “TLD Area”, including a definition of the areas and activities where TLD badges need to be worn, identifying workers to enroll in the program, proper wear and storage of TLD badges, and training requirements.

5.4. Supervisors will coordinate unit program requirements and execution (delivery/changeout procedures, etc) with the TLD Program Manager.

5.5. Workers in TLD Area workplaces will report to Bioenvironmental Engineering for enrollment into the TLD Program prior to conducting any duties that involve ionizing radiation.

5.6. Workers in TLD Area workplaces that wear a TLD badge during non-Air Force employment will ensure that the TLD Program Manager receives a copy of their TLD results. The TLD Program Manager will forward the results to the USAF Master Radiation Exposure Registry.

5.7. Workers in TLD Area workplaces who perform duties involving ionizing radiation at a temporary duty (TDY)(or deployment) location will coordinate TLD monitoring continuity with the TLD Program Manager at least 1 week prior to departing their home station.

5.7.1. For TDY/deployments anticipated to be 90 days or less, the TLD Program Manager will issue a designated transit control dosimeter and advise the member on proper monitoring procedures while TDY.

5.7.2. For TDY/deployments anticipated to be over 90 days, the TLD Program Manager will determine if the TDY/deployment location is supported by an Air Force TLD monitoring program, advise the member on how to arrange for the appropriate preventive medicine support, and inform the member on documentation requirements.

5.8. The Installation RSO will review TLD results for each TLD Area and direct an investigation for lost badges or exposures above the Investigation Action Level.

5.8.1. The Installation RSO will review exposure limits and follow the procedures outlined in AFI 48-125, ([Chapter 7](#) and [Chapter 8](#)) and AFI 48-148 for investigating and reporting abnormal or overexposure results.

5.8.2. For lost badges or exposures above the Investigation Action Level, but below abnormal exposure levels, the TLD Program Manager will prepare a letter to the TLD Area Monitor requesting an explanation of the lost badge or excessive exposure(s). The Installation RSO will review the response and determine if additional control or education efforts are required to keep exposures ALARA.

5.8.3. The Installation RSO will direct an investigation if a personnel dosimetry result indicates the exposure to the fetus will exceed 500 mrem (50 mrem on a monthly badge) if the dose rate continues for the course of a workers pregnancy, and advise the member/supervisor on actions needed to prevent fetal overexposure.

Chapter 6

UNIT RADIATION SAFETY PROGRAMS

6.1. The Installation RSO will advise commanders with authorized ionizing radiation sources on the scope and requirements of their unit radiation safety program.

6.1.1. For sources that have the potential to expose workers above 10% of the applicable dose limits, the unit commander will establish a unit radiation safety program with the following elements:

6.1.1.1. A supervisor who has direct involvement with day to day operations involving the radiation sources and is responsible for overseeing the unit radiation safety program for the unit commander.

6.1.1.2. A Unit Radiation Safety Officer meeting the qualifications of AFI 48-148, Section 3.1.1.3. When the unit has radioactive material requiring a permit or license, the Unit RSO will also function as the Permit RSO.

6.1.1.3. Enrollment in the TLD monitoring program.

6.1.1.4. A Unit Radiation Safety Operating Instruction that outlines the unit's radiation safety goals, procedures, controls, and training.

6.1.2. For sources that do not have the potential to expose workers above 10% of the applicable dose limits, but require an AF permit or NRC license, the unit commander will establish a unit radiation safety program with the following elements:

6.1.2.1. A supervisor who has direct involvement with day to day operations involving the radiation sources and is responsible for overseeing the unit radiation safety program for the unit commander. The supervisor may also function as the Permit RSO or alternate when approved by HQ AFMOA/SGZR.

6.1.2.2. A Permit RSO. The Permit RSO will be a person, appointed in writing by the unit commander, and approved by HQ AFMOA/SGZR.

6.1.2.3. A Unit Radiation Safety Operating Instruction that outlines the unit's radiation safety goals, procedures, controls, and training.

6.1.3. For all other sources, the unit commander will establish a unit radiation safety program with the following elements:

6.1.3.1. A supervisor who has direct involvement with day to day operations involving the radiation sources and is responsible for overseeing the unit radiation safety program for the unit commander.

6.1.3.2. A Unit Radiation Safety Operating Instruction that outlines the unit's radiation safety goals, procedures, controls, and training.

6.2. Commanders will coordinate their Unit Radiation Safety Operating Instruction with the Installation RSO.

Chapter 7

RADIATION SAFETY/ALARA TRAINING

7.1. The Installation RSO will prepare radiation safety lesson plans for each organization where radioactive material or radiation producing devices are received or used, provide the lesson plan to the unit supervisor, and advise the supervisor on how to provide unit training to keep personnel exposures as low as reasonably achievable (ALARA). The Installation RSO will determine the scope and content of the training based on the types of ionizing radiation sources and hazards in the workplace following AFI 48-148, Section 3.3.

7.2. Supervisors will provide radiation safety training, following the Installation RSO lesson plan, to all personnel in their unit that work with or around the radioactive material/radiation producing devices. The supervisor will ensure workers are trained before starting work with or around radioactive material/radiation producing devices and annually as a refresher.

7.3. Supervisors of organizations that ship radioactive material via commercial carriers will ensure their workers are also trained on hazardous material shipping requirements of 49 CFR 172 before performing any radioactive material shipping duties and provided refresher training every three years. Supervisors will obtain a copy of the training material and the name and address of the person conducting the training to keep with the employee training record.

7.4. Supervisors will all ensure radiation safety training is documented on each employee's AF Form 55, **Employee Safety and Health Record**.

7.5. Supervisors will maintain a master listing of initial and recurring refresher training using the AF Form 2767, **Occupational Health Training and Protective Equipment Fit-Testing**, and provide updated copies to the Installation RSO whenever there are changes to the listing.

Chapter 8

RADIOACTIVE MATERIAL STORAGE, INVENTORY, AND CONTROL PROCEDURES

- 8.1.** Supervisors of organizations with radioactive material will ensure that each item containing radioactive material is labeled with an AFTO Form 9B (or equivalent label approved by the Installation RSO) that indicates the material's isotope, activity, and activity date.
- 8.2.** Supervisors will maintain an inventory of the unit's radioactive material that includes transfer/disposition information when material is taken off of the inventory.
- 8.3.** Supervisors will store radioactive material in locations approved by the Installation RSO and ensure the storage area is secured to prevent unauthorized removal of material.
- 8.4.** The installation RSO will determine if a storage location need to be identified as a restricted area and will provide the unit supervisor direction on proper posting and control of the area for inclusion in the unit operating instruction.
- 8.5.** The installation RSO will conduct a radiation survey of each radioactive material storage area at a frequency directed by the permit, technical order, or at the discretion of the Installation RSO (when no specific frequency requirement exists).

Chapter 9

EXCESS RADIOACTIVE MATERIAL DISPOSITION

- 9.1.** Radioactive waste requires special handling, documentation, and permits. Commanders, supervisors, and Unit RSOs will ensure all excess radioactive material is not called “radioactive waste” without prior coordination with the Installation RSO.
- 9.2.** Supervisors will coordinate disposition of all excess radioactive material, including electron tubes, lensatic compasses, etc with the Installation RSO using a disposition request letter following the template at attachment 4.
- 9.3.** The Installation RSO will assist the supervisor fill out sections of the disposition request, and determine if the material can be recycled through the 88 ABW/EM radioactive material recycling program.
- 9.3.1. If the material can be recycled, the Installation RSO will request recycling instructions from 88 ABW/EM.
 - 9.3.2. If the material can not be recycled, the Installation RSO will endorse the disposition request and send to the AF Radioactive and Mixed Waste Office (AFRMW), AFIOH/SDRH.
- 9.4.** As noted in **Chapter 8**, supervisors will properly secure, store, label, and keep an inventory radioactive material pending disposition or pending shipment instructions.
- 9.5.** The Installation RSO will coordinate final shipping or transfer of the excess material with the unit supervisor when disposition or recycling instructions are received from 88 ABW/EM or AFIOH/SDRH.

Chapter 10

RADIOACTIVE MATERIAL RECEIPT

10.1. Whenever possible, radioactive material will be shipped to Hickam AFB as hazardous material through 15 LRD/LGRDC, Cargo Movement.

10.1.1. Radioactive in transit to a final destination (including 15 LRD/LGRDC) may be temporarily stored by 735 AMS/TRK without being “received” and without requiring prior Installation RSO authorization. The procedures of this chapter, however, will apply to these shipments in temporary storage.

10.1.2. Radioactive material “instruments or articles” may be shipped by FEDEX, UPS, etc and arrive at 15 CS/SCSA (Base Information Transfer Center) or directly to a receiving unit.

10.2. Personnel from the first receiving organization who accepts possession of a radioactive material shipment will immediately notify the Installation RSO who will provide guidance on package handling/distribution.

10.3. As soon as possible (within 3 hours of receipt), the Installation RSO will survey any package labeled with a radioactive White I, Yellow II, or Yellow III label to verify the package does not have removable radioactive contamination or radiation intensity above the package limits.

10.4. If personnel from either a receiving or using organization notes that a package or item is damaged they will isolate the area around the container and immediately notify the Installation RSO.

Chapter 11

RADIOACTIVE MATERIAL SHIPPING

11.1. Organizations intending to ship radioactive materials will contact the Installation RSO and 15 LRD/LGRDC Cargo Movement to coordinate proper packaging, labeling, and shipping surveys prior to delivering the item to the shipping organization.

11.2. Where possible, radioactive material items that are not needed for the item shipment (such as removable check sources) will be removed and stored by the owning organization to minimize shipping requirements and liability.

11.3. A 15 LRD/LGRDC Cargo Movement certified hazardous material shipping technician will ensure the proper packaging, labeling, and manifest information is prepared for the shipment.

11.4. For radioactive material requiring a license or permit, the Permit RSO or Installation RSO will confirm the receiver is authorized and agrees to receive the material prior to shipping.

11.5. Before the radioactive material item is enclosed in packaging, 15 LRD/LGRDC Cargo Movement will coordinate a radiation survey with the Installation RSO to confirm radiation levels and verify the proper shipping documentation/labeling required by 49 CFR 172.

Chapter 12

UNSHIELDED INDUSTRIAL X-RAY OPERATIONS

12.1. Organizations planning to conduct an unshielded industrial x-ray operation will contact the Installation RSO at least 24 hours in advance to coordinate specific safety and health procedures for the unshielded operation.

12.2. The radiographer will provide the Installation RSO information on the planned exposures, including the x-ray settings, orientation, number of shots, operating location, target description, anticipated 2 mR/hr and background distances, exposure monitoring, and all radiation safety control measures planned in accordance with T.O. 33B-1-1, Nondestructive Inspection Methods.

12.3. The Installation RSO will confirm the radiation safety control measures with the radiographer, authorize the operation, assist initial exposure monitoring to verify adequate control measures/boundaries, and document exposure estimates in the Command Core System Database and appropriate industrial hygiene casefile.

12.4. After the Installation RSO has approved the unshielded operation, the radiographer will ensure all of the T.O. 33B-1-1, Nondestructive Inspection Methods, safety measures and Installation RSO directions are followed for the remainder of the operation. If there are changes to the planned operations, the radiographer will coordinate re-evaluation of the radiation safety plans with the Installation RSO before continuing operations.

12.5. The radiographer will immediately halt operations, record pertinent information, and contact the Installation RSO if there are any accidents or incidents during the unshielded operations, including inadvertent exposure of personnel transiting the controlled area.

Chapter 13

INCIDENT/ACCIDENT/OVER-EXPOSURE PROCEDURES

13.1. Loss of Radioactive Material:

13.1.1. Organizations that possess radioactive material will immediately inform the Installation RSO when they recognize the material is lost, stolen, or missing from inventory. The Unit Commander will ensure all information needed to investigate and report the incident are provided to the Installation RSO.

13.1.2. The Installation RSO will report the incident to the AF Radioisotope Committee (HQ AFMOA/SGZR), by telephone or written report as applicable, within the reporting timelines of AFI 40-201, attachment 7. The Installation RSO will conduct an investigation into the loss of material and prepare an incident report as directed by AFMOA/SGZR and AFI 40-201, Chapter 8.

13.1.3. If the loss of material presents a potential hazard to off-base populations, the Installation RSO will coordinate notification to the Hawaii State Department of Health, Hazard Evaluation and Emergency Response Office, through the 15 AW command post.

13.1.4. If the material is believed to be stolen, the Installation RSO will coordinate notification to the Honolulu Federal Bureau of Investigation, Joint Terrorism Task Force through the 15 SFS and Office of Special Investigation, Detachment 6.

13.2. Discovery of Radioactive Material:

13.2.1. Personnel who discover radioactive material or items containing radioactive material on Hickam AFB property that are not authorized by the Installation RSO will immediately inform the Installation RSO.

13.2.2. The Installation RSO will determine if the material discovery needs to be reported to HQ AFMOA/SGZR in accordance with AFI 40-201, attachment 7.

13.2.3. Personnel from organizations that transfer refuse, scrap metal, or other materials to non-AF parties will not accept re-possession of the material if it is subsequently identified as "radioactive". They will immediately inform the Installation RSO, who will coordinate HQ AFMOA/SGZR approval to accept the radioactive material where AF ownership is reasonable.

13.3. Radioactive Material Accidents:

13.3.1. All personnel will treat damaged items containing radioactive material as potentially contaminated, will secure the area around the damaged item, and will immediately contact the Installation RSO for assistance.

13.3.2. The Installation RSO will determine if the accident can be handled safely by the organization involved with RSO support or needs to be elevated as a "Level 2" hazardous material response in accordance with 15 AW OPLAN 10-2, Full Spectrum Threat Response.

13.3.3. The Installation RSO will determine if the incident needs to be reported to HQ AFMOA/SGZR in accordance with AFI 40-201, attachment 7.

13.4. Suspected Ionizing Radiation Overexposures:

13.4.1. Supervisors and persons working with ionizing radiation sources will immediately contact the Installation RSO for assistance if they believe personnel may have been exposed above regulatory limits.

13.4.2. The Installation RSO will confirm the incident parameters with the unit supervisor and persons involved, determine or estimate the exposure level, determine if an overexposure occurred, and direct medical evaluation as needed.

13.4.3. The Installation RSO will determine if the incident needs to be reported to HQ AFMOA/SGZR in accordance with AFI 40-201, attachment 7. For potential medical/dental x-ray exposure to patients, the Installation RSO will also follow AFOSH Std 48-148, Chapter 4, and involve the appropriate 15 MDG (SGH, 15 MDG/CC) and HQ PACAF/SG offices in the incident reporting.

Chapter 14

RADIATION FACILITY PLANS REVIEW

14.1. 15 CES/CEC will route all plans for modification of facilities or design of new facilities that involve the use of radioactive material or radiation producing devices for review by the Installation RSO to ensure ALARA is considered.

14.2. The Installation RSO will provide 15 CES/CEC recommendations on procedures to prevent over-exposure and any ALARA considerations.

14.3. The Installation RSO will coordinate additional health physics design support with the AF Institute of Operational Health (AFIOH) as needed.

Chapter 15

QUALITY CONTROL

15.1. The Installation RSO will conduct an annual review of the installation radiation safety program, including:

15.1.1. Currency of all local implementing directives (wing instructions and unit office operating instructions, etc.).

15.1.2. All radiation survey results for the past year to ensure all required surveys have been performed, properly documented, and corrective action taken.

15.1.3. All permitted radioactive sources and devices and nonexempt quantities of radioactive material in non-permitted sources and devices must be inventoried IAW AFI 40-201, Section 3.6.2.

15.1.4. All TLD results for the past year to ensure that adverse exposure trends were noted and appropriate follow-up action was taken for results that exceeded standards or action levels.

15.1.5. All USAF Radioactive Material Permits and NRC General Licenses to ensure currency and compliance.

15.2. The Installation RSO will present the results of the annual review to the Aerospace Medicine Council and the Occupational Safety and Health Council.

Chapter 16

15AW/AF FORMS

16.1. 15th Airlift Wing Forms Prescribed:

16.1.1. **15 AW Form 52**, Non-Air Force Use of Radioactive Material on Hickam AFB Authorization Request

16.1.2. **15 AW Form 53**, Ionizing Radiation Producing Device RPD Authorization Request

16.1.3. **15 AW Form 54**, Radioactive Material RAM Use Authorization Request

16.2. AF Forms Used

16.2.1. AF Form 55.

16.2.2. AF Form 2767.

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