

**BY ORDER OF THE COMMANDER
51ST FIGHTER WING**

**51ST FIGHTER WING INSTRUCTION
48-102**



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**INSTALLATION RADIATION
PROTECTION PROGRAM (IRPP)**

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This instruction implements Air Force Policy Directive (AFPD) 48-1, *Aerospace Medicine Enterprise*, and reflects 10 CFR Part 20, *Standards for Protection Against Radiation*, and 10 CFR Part 19, *Notices, Instructions and Reports to Workers: Inspection and Investigations*, published by the US Nuclear Regulatory Commission (USNRC). It establishes requirements for conducting the Osan Air Base (AB) ionizing radiation protection program (IRPP) and implementing the as low as reasonably achievable (ALARA) concept. It also outlines the quality assurance requirements to ensure radiation exposures are kept ALARA. This instruction describes the responsibilities of all personnel involved with the control and use of radioactive material (RAM) and radiation-producing devices (RPD). It also describes necessary procedures for the implementation of an effective radiation safety program and applies to all assigned, attached, and associate organizations at Osan AB, and all collocated operating bases and/or geographically separated units under the 51st Fighter Wing (51 FW) jurisdiction. Governing directives for the radiation protection program are Department of Defense Instruction (DoDI) 6055.08, *Occupational Ionizing Radiation Protection Program*; Air Force Instruction (AFI) 40-201, *Radioactive Materials Management*; AFMAN 48-125, *Personnel Ionizing Radiation Dosimetry*; AFI 48-148, *Ionizing Radiation Protection*; AFI 48-109, *Electromagnetic Field Radiation (EMFR) Occupational and Environmental Health Program*; AFI 48-139, *Laser and Optical Radiation Protection Program* and United States Forces Korea Regulation (USFKR) 385-1, *United States Forces Korea Safety Program*. This instruction applies to all personnel assigned, attached, or associated with 51 FW. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the

appropriate functional chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This publication has been revised and must be reviewed in its entirety. This publication acts as a written base radiation protection plan that provides Osan AB specific processes for determination of investigation action level, monitoring of radon exposure, and reporting of annual audit and inventory by permit radiation safety officer (PRSO) for the installation radiation safety officer (IRSO) as specified in RAM permits. This revision specifies the requirements for radon assessment and PRSO to ensure the IRSO's and unit Radiation Safety Officers (RSO's) awareness of annual internal audit and inventory IAW permits. In addition, this revision adds the procedures of electromagnetic field (EMF) radiation and laser safety for Bioenvironmental Engineering (BE) and workplace supervisors.

1. Air Force Policy: Air Force policy mandates that all exposures to ionizing radiation will be ALARA. There should be no exposure to ionizing radiation without an expected benefit and the dose received should be the lowest possible, consistent with the state of technology, costs, and operational requirements.

2. Responsibilities at Wing Level:

2.1. Installation Commander (51 FW/CC) will:

2.1.1. Appoint Bioenvironmental Engineers, or other individual with equivalent radiation experience, as the primary and alternate 51 FW RSOs, who will serve as the IRSOs for Osan AB.

2.1.2. Ensure the IRSO is notified of all planned uses of RAM or RPD on the base.

2.1.3. Ensure all RAM shipments to or from the base are coordinated with the IRSO.

2.2. BE or IRSO will:

2.2.1. Ensure qualified 43E3X Bioenvironmental Engineers, 4B07/91 Bioenvironmental Engineering Technicians, or qualified civilians in the BE flight are appointed as the primary and alternate IRSO.

2.2.2. Develop a formal IRPP to ensure all radiation exposures comply with ALARA requirements. Coordinate with each unit RSO/PRSOs to ensure that a comprehensive base-wide and unit-specific IRPP exists. Provide consultation to unit RSOs/PRSOs in the development of local guidance and instructions consistent with the ALARA concept.

2.2.3. Perform health risk surveillance of areas where radiation sources are used or stored.

2.2.4. Review all plans for modification, design, or deployment of RPD or material and/or storage/use locations under the control of 51 FW.

2.2.5. Manage the USAF Personnel Dosimetry Program: The investigation action level for Osan AB can be found in paragraph 2.2.10 of this instruction. These levels are investigated and their results are reported to the Aerospace Medicine Council (AMC). The AMC will determine the investigation action level based on thermo-luminescent dosimeters (TLD) exposures trend analysis and recommendation by the IRSO.

2.2.6. Accomplish and document IRPP reviews, present program issues, trends and causes, and courses of action, and make recommendations to installation commander at the 51 FW Environmental, Safety, and Occupational Health Council (ESOHC) annually.

2.2.7. Document that ALARA training are being conducted at least annually for all radiation workers. Tailor the level of training to the specific category of personnel and hazard potential. Include information regarding risk from radiation exposure; occupational health risks to pregnant radiation workers and their fetus during their entire pregnancy period; maximum permissible dose limits; protective measures required (tailored for specific radiation work); and ALARA concept and practice.

2.2.8. Perform package swipes on shipments containing RAM and ensure shipping requirements are met in accordance with 49 CFR Part 173, *Shippers - General Requirements for Shipments and Packagings*, 10 CFR 20, and AFI 40-201.

2.2.9. Survey broken or damaged containers to determine the extent of radiological hazards and direct recovery actions as necessary.

2.2.10. Report and investigate each case of suspected or actual overexposure or abnormal radiation exposure in accordance with AFI40-201, AFI 91-204, *Safety Investigations and Reports*, and USFKR 385-1 to determine the cause and prevent a recurrence, to include determining fetal doses for ionizing radiation and the extent of exposure to the affected individuals. Investigate TLD exposures exceeding investigation action levels (IALs) by the IRSO or BE.

2.2.10.1. Default investigation levels set forth in AFI 48-148 will be used. Any adjustments will be made through the Aerospace Medicine Council.

2.2.10.2. Bioenvironmental Engineering will trend and analyze radiation exposure levels quarterly and update and report the IALs as necessary through the AMC.

2.2.11. Review and approve/disapprove all requests to bring RAM or RPD on base or to conduct work involving such materials or equipment.

2.2.12. Coordinate request for radioactive water disposal through the U.S. Air Force School of Aerospace Medicine or recycling through Air Force Radioactive Recycling and Disposal Office.

2.2.13. Notify the United States Forces Korea (USFK) RSO within 24 hours of a radiation incident IAW USFKR 385-1.

3. Responsibilities at Unit Level:

3.1. Commanders (of units that own or use RAM or RPD) will:

3.1.1. Enforce the requirements of this instruction, federal and USAF regulation, and (if applicable) their RAM permit.

3.1.2. Ensure the IRSO or BE is contacted prior to ordering, receiving, shipping, relocating, transferring, altering, turning in and/or disposing of RAM or RPD.

3.1.3. Appoint qualified (ref. AFI 48-148, attachment 2 and 10 CFR 30.33, *General Requirements for Issuance of specific License*) primary and alternate unit and/or permit RSOs in writing (to include name, rank, office symbol, duty phone, and DEROS) and provide a copy of the appointment letter to the IRSO or BE ensure a fully trained primary and alternate RSO for each item, including any subsequent changes.

3.1.4. Obtain and manage USAF RAM permits as required per AFI 40-201.

3.1.4.1. Must apply for a permit amendment when a change the primary or alternate PRSO or possession of more than the maximum quantity authorized on the permit.

3.1.5. Ensure a RAM management and an unit-specific safety program is established for all radioactive material permits.

3.1.5.1. Ensure radiation safety procedures are incorporated into appropriate procedures or instructions. These procedures and instructions must describe the actions or steps necessary to safely conduct a particular task involving a RAM and document processes of the available to all users of radiation sources, and annually reviewed and updated. The radiation safety procedures also shall describe the safety

controls and procedural safeguards necessary to limit exposure and actions to be followed in the event of a mishap or emergency.

3.1.6. Ensure detailed information regarding the exchange of RAM-containing devices (e.g. SNIPER pods and Depleted Uranium (DU) munitions) between units and/or Co-located Operating Bases (COBs) is communicated to the installation RSO before the exchange takes place.

3.2. Unit RSOs will:

3.2.1. Be familiar with safe use procedures, hazards and emergency actions for the RAM and/or RPD owned and maintained by the unit.

3.2.2. Enforce the requirements of this instruction, and federal and USAF regulations.

3.2.3. Act as a point of contact on ionizing radiation safety matters for the unit, including emergencies.

3.2.4. Immediately report any accident, fire, theft, or loss involving RAM to the IRSO or BE (DSN 784-2623), and also any suspected overexposures to ionizing radiation.

3.2.5. Maintain active liaison with the IRSO or BE.

3.2.5.1. Ensure the IRSO or BE is contacted prior to ordering, receiving, shipping, relocating, transferring, altering, turning in and/or disposing of RAM or RPD.

3.2.5.2. Inform IRSO or BE of any changes or alterations to existing buildings in which RAM or RPD are used.

3.2.5.3. Ensure an inventory identifying the locations of all RAM or RPD is compiled in accordance with RAM permit, TO, AFI, or at least every six months, and a copy of the inventory is provided to the IRSO or BE.

3.2.5.4. Ensure that items containing RAM that are obtained under a Nuclear Regulatory Committee (NRC) General License are identified and communicated to the IRSO or BE for registration with the USAF Radioisotope Committee (RIC).

3.2.6. Ensure the receipt, possession, distribution, use, transfer, and disposal of RAM is accomplished according to the specific conditions of the applicable USAF General License.

3.2.7. Establish an unit-specific radiation safety protection program.

3.2.7.1. Establish control procedures to ensure only authorized personnel have access and operate to RAM or RPD.

3.2.7.2. Ensure personnel receive initial and annual training on ALARA concepts and practice, proper wear and handling of TLDs if wear is required, unit radiation sources, and safety procedures by the unit RSO and document the training on individual's AF Form 55, *Employee Safety and Health Record* or electronic mediums such as AF FORMs/MAF LOG C2/G081 or locally developed products.

3.2.7.3. Prepare unit radiation safety operating instruction or radiation safety manuals and coordinate all operating instructions or radiation safety manuals through IRSO or BE for review and final approval.

- 3.2.7.4. Maintain copies of all BE surveys and all radiation safety training documentation.
 - 3.2.7.5. Track all unit actions needed to ensure ionizing radiation hazards are ALARA. Ensure all corrections are made and documented in a timely manner. Ensure required warning signs are properly posted.
 - 3.2.7.6. Coordinate BE surveys with unit commander and supervisors, and ensure that personnel are informed of the status of such activities.
 - 3.2.7.7. Ensure personnel are trained on emergency actions, including notification procedures.
 - 3.2.7.8. Ensure radiation incident reporting procedures are posted as required in paragraph 4.1.1.
- 3.3. Permit RSOs will:
- 3.3.1. Be a member of the unit with authorized use of permitted RAM (an employee of the USAF), unless otherwise approved by the Radioisotope Committee Secretariat (RICS).
 - 3.3.2. Coordinate with the permittee on requests for an initial permit (as proposed PRSO), renewals, amendments of an existing permit, or termination of a permit. The PRSO cannot be the permittee.
 - 3.3.3. Ensure compliance with AFI 40-201, other applicable instructions, permit conditions and representations in permit applications.
 - 3.3.4. Inform the permittee, supervisors, workers, and the IRSO or BE when procedures are not in compliance with AFI 40-201, federal regulations, or ALARA.
 - 3.3.5. Provide information, as necessary, to the IRSO or BE regarding the receipt, possession, use, distribution, storage, transportation, transfer or disposal of any RAM, or commodity containing RAM.
 - 3.3.6. Coordinate with the IRSO or BE to apply for a USAF RAM permit from the RICS, IAW AFI 40-201.
 - 3.3.7. Coordinate with the IRSO or BE on operations affecting the installation radiation safety program (e.g., changes in source-use locations, shipment of RAM, or method of disposal) and approves or disapproves actions under his/her jurisdiction.
 - 3.3.8. Ensure maintenance of records and reports required by NRC regulations and AFIs that apply to each permit, including the permit and permit applications, amendments, and correspondence related to the permit.
 - 3.3.9. Brief, at least annually, the Permittee and IRSO on the permit radiation safety program, including program regulatory compliance and the results of personnel exposures. Documents the annual brief with a memo, Staff Summary Sheet (SSS), or electronic SSS signed by the Permittee and maintains this with permit records.

3.3.10. Ensure annual training is conducted IAW 10 CFR 19.12, *Instruction to Workers* and is commensurate with the level of radiation risk represented by authorized permit activities. Ensure training of non-radiation workers that work in the area shall be conducted as well.

3.4. Workplace supervisors (of personnel using or working on RAM or RPD) will:

3.4.1. Ensure workplace adheres to the requirements of AFI 48-148.

3.4.2. Ensure protection of Airmen and AF civilians from occupational exposures. Contractors shall comply with AFI 48-148 regarding the use and control of radiation devices and are solely responsible for the health and safety of their personnel as specified in their contract.

3.4.3. Ensure protection of the public from non-occupational exposures from workplace practices.

3.4.4. Ensure personnel are trained on radiation hazard in the workplace and appropriate protection requirements with documentation on individual's AF Form 55 or electronic mediums such as AF FORMs/MAF LOG C2/G081 or locally developed products.

3.4.5. Ensure radiation safety procedures are current and adhered to by workers.

3.4.6. Ensure declared pregnant workers notify Public Health of their pregnancy status.

3.4.7. Notify the IRSO and unit RSO of changes in practices or procedures involving radiation sources, potential violations of applicable instruction, unsafe work practice involving radiation sources, or accidents or incidents involving radiation.

3.4.8. Where required, maintain TLDs to ensure proper control of badges and train personnel on the local procedures established to prevent unintentional radiation exposure to badges. Send newly assigned personnel to BE to receive TLDs and obtain fundamental training on ALARA and TLD wearing, storage, and handling.

3.4.9. Ensure that workers handling a RAM report to the hospital if they receive cuts or abrasions while in the work area.

3.4.10. Immediately report any accident, fire, theft, or loss involving RAM to the unit RSO and the IRSO or BE (DSN 784-2623).

3.4.11. Immediately report suspected overexposures to ionizing radiation to the unit RSO and installation RSO.

3.4.12. Brief workers on the results of all BE surveys of their work areas.

3.5. Workers (individuals using or working on RAM or RPD) will:

3.5.1. Wear their assigned TLD badges properly, if required, whenever working with RAM or RPD.

3.5.2. Review and comply with requirements published in USAF RAM permits, DoDI, AFI, TO, and this instruction.

3.5.3. Operate in accordance with the ALARA concept and established safe operating practices.

3.5.4. Promptly inform their supervisors of any suspected accidental exposure, cut, or skin abrasion while handling RAM.

3.5.5. Immediately report any accident, fire, theft, damage, or loss involving RAM to their supervisor and the unit RSO.

3.5.6. Immediately report suspected overexposures to ionizing radiation to their supervisor and the unit RSO.

3.6. Engineering flight (51 CES/CEAN) will ensure that all plans for modification or construction of facilities that are designed for the use of RAM or RPD are reviewed by the IRSO or BE.

3.7. The US Army Corps of Engineers and all contracting officer representatives (CORs) will obtain pre-approval from the IRSO or BE for any/all contractor use of RAM or RPD on base by providing the following information in writing at least 30 calendar days before bringing any RAM or RPD onto the installation:

3.7.1. Description of proposed activities, including.

3.7.1.1. Type of equipment.

3.7.1.2. Purpose or Use of equipment.

3.7.1.3. Type and activity of RAM source.

3.7.1.4. Safety procedures.

3.7.1.5. Dates that source will be on the base.

3.7.2. Copy of RAM license.

3.7.3. Contact information, including name, address, phone number and email address for:

3.7.3.1. Contracting officer.

3.7.3.2. Sponsoring unit point of contact.

3.7.3.3. Responsible local contractor representative (must have local contact information).

3.7.3.4. Radiation safety officer named on the RAM license.

3.7.4. Copy of the contract and correspondence with equipment owner. Contract must contain:

3.7.4.1. Contractor's acknowledgement that the IRSO or BE can make periodic assessments to ensure that the contractor follows appropriate radiation safety practices to prevent exposure of AF personnel and avoid contamination of AF property and suspend operations believed to be unsafe.

3.8. All other organizations/activities using RAM or RPD on base, or sponsoring a user of the same, will follow procedures in paragraph 3.7 in obtaining approval for use.

3.9. The US Army Contracting Command Korea will train CORs on the requirements in paragraph 3.7 above.

3.10. Outbound cargo movement (51 LRS/LGRDDC) will:

3.10.1. Notify the IRSO or BE to survey any radioactive item leaving Osan AB and/or any radioactive waste containers prior to shipment.

3.10.2. Pack, mark, and label radioactive waste in accordance with the code of federal regulations (CFRs), AFIs, and, when applicable, follow instructions provided for transportation by the radioactive waste generator.

3.10.3. Ensure personnel trained in the movement and packaging of RAM are available at all times.

3.11. Material Management (51 LRS/LGRM) will maintain a proper holding area with security to temporarily store items that contain RAM or radioactive wastes. Also, 51 LRS/LGRM will coordinate with the IRSO or BE to identify an adequate location as a holding area and its appropriate security measures.

3.12. Special Handling (731 AMS/TRKS), Material Management (51 LRS/LGRM) and Outbound Cargo Movement (51 LRS/LGRDDC) will notify the IRSO or BE as soon as possible to survey any radioactive item terminating shipment at Osan AB in order to comply with the requirement in 10 CFR 20.1906, *Procedures for receiving and opening packages*, paragraph (c), that the survey be accomplished “as soon as practical after receipt of the package, but not later than 3 hours after the package is received at the licensee's facility if it is received during the licensee's normal working hours, or not later than 3 hours from the beginning of the next working day if it is received after working hours.”

4. Reporting Radiological Incidents:

4.1. Any accident, fire, theft, damage, loss, or suspected overexposures involving RAM must be immediately reported to the unit RSO and the IRSO or BE.

4.1.1. Radiation incident reporting instructions, including the 24-hour contact phone numbers of the primary and alternate unit RSO and the installation RSO, must be posted outside the entrance to any storage room containing RAM.

4.1.2. Radiation incident reporting instructions must be included in the unit's health and safety briefing for newcomers expected to work in workplaces dealing with RAM or RPD to ensure all personnel are aware of reporting requirements.

4.1.3. The IRSO may be contacted at BE during normal duty hours (DSN 784-2623). After hours, he/she may be contacted through the 51 MDG Emergency Room (DSN 784-2500) or BE on-call cell phone (010-9300-8906).

4.2. The IRSO or BE will notify within 24 hours of a radiation incident, including the loss or damage of equipment containing radioactive material.

4.2.1. 51FW/SEG.

4.2.2. 7AF/SEG.

4.2.3. The USFK RSO. During normal duty hours (0800-1700), call DSN 755-8126. After duty hours, call Safety director duty cell phone at 010-8978-4694 who will in turn notify the RSO.

4.3. The IRSO or BE will provide a copy of the accident or incident report to the USFK RSO within 30 days of the event.

5. Radon Assessment:

5.1. BE (51 AMDS/SGPB) will: conduct initial radon assessments for new structures and follow-up periodic assessments of old structures IAW the *Bioenvironmental Engineer's Guidebook for Radon Management*.

5.2. Real property (51 CES/CEIAP) will notify the IRSO or BE of a list of new structures built on the base when requested by BE.

5.3. Construction Management (51 CES/CENMP) will :

5.3.1. Coordinate radon remediation projects for buildings when notified of radon results exceeding 4.0 picocuries per liter, in accordance with AFI 48-148. These projects should include a design review with IRSO and subsequent radon test after mitigation.

5.3.2. Notify the IRSO or BE within 5 days after completion of facility construction or facility mitigation.

6. Electromagnetic Field (EMF) Radiation Safety Procedures:

6.1. BE will assess EMF emitters within work areas during the industrial hygiene surveys. The frequency of EMF emitter surveys outside occupied work areas will be based on the risk assessment and will be at the discretion of the surveyor/industrial hygienist. A survey will be completed in accordance with requirements of AFI 48-109 and the *U.S. Air Force School of Aerospace Medicine (USAFSAM) Base-Level Guide for Electromagnetic Frequency Radiation*.

6.2. Supervisors will:

6.2.1. Coordinate all modifications and additions to RF emitters with BE. Supervisors are responsible for ensuring their workers are aware of and follow the safety procedures outlined in AFI 48-109, equipment technical manuals, and unit safety awareness training. Supervisors will review and implement their responsibilities as explained in AFI 48-109.

6.2.2. Conduct initial and annual worker training on hazards associated with EMF radiation and document training on AF Form 55 or electronic mediums such as AF FORMs/MAF LOG C2/G081 or locally developed products.

6.2.3. Inform BE and request a hazard assessment survey for each new EMF system prior to operation.

7. Laser Safety:

7.1. BE will:

7.1.1. Survey all class 3B and 4 lasers IAW AFI 48-139.

7.1.2. Input all laser surveys into Defense Occupational and Environmental Health Readiness System (DOEHRS) IAW the *USAFSAM Laser Data Entry and Report Guide (DERG)*.

7.2. Supervisors will:

7.2.1. Coordinate with BE prior to the purchase of any new laser system.

7.2.2. Request BE conduct a laser survey once they have received any new laser system and prior to initially operating the system.

WILLIAM D. BETTS, Colonel, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

DoDI 6055.8, *Occupational Ionizing Radiation Protection Program*, 15 December 2009

AFPD 48-1, *Aerospace Medicine Enterprise*, 23 August 2011

AFI 40-201, *Radioactive Materials Management*, 17 September 2014

AFI 48-109, *Electromagnetic Field Radiation (EMFR) Occupational and Environmental Health Program*, 1 August 2014

AFI 48-139, *Laser and Optical Radiation Protection Program*, 30 September 2014

AFI 48-148, *Ionizing Radiation Protection*, 20 November 2014

AFI 91-204, *Safety Investigations and Reports*, 12 February 2014

AFMAN 33-363, *Management of Records*, 1 March 2008

AFMAN 48-125, *Personnel Ionizing Radiation Dosimetry*, 4 October 2011

USFKR 385-1, *United States Forces Korea Safety Program*, 28 September 2009

10 CFR Part 19, *Notices, Instructions and Reports to Workers: Inspection and Investigations*, 1 January 2017

10 CFR 19.12, *Instruction to Workers*, 1 January 2017

10 CFR Part 20, *Standards for Protection Against Radiation*, 1 January 2017

10 CFR 30.33, *General Requirements for Issuance of Specific Licenses*, 1 January 2017

10 CFR 20.1906, *Procedures for receiving and opening packages*, 1 January 2017

49 CFR Part 173, *Shippers - General Requirements for Shipments and Packagings*, 1 October 2016

Adopted Forms

AF Form 55, *Employee Safety and Health Record*

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AB—Air Base

AFI—Air Force Policy Instruction

AFPD—Air Force Policy Directive

AFMAN—Air Force Manual

AFRIMS—Air Force Records Information Management System

ALARA—as low as reasonably achievable

AMC—Aerospace Medicine Council
BE—Bioenvironmental Engineers
CFR—code of federal regulations
COBs—Co-located Operating Bases
COR—contracting officer representatives
DERG—*Data Entry and Report Guide*
DODI—Department of Defense Instruction
DU—Depleted Uranium
EMF—Electromagnetic Field
ESOHC—Environmental, Safety, and Occupational Health Council
51 FW—51stFighter Wing
IALs—investigation action levels
IRPP—Ionizing Radiation Protection Program
IRSO—Installation Radiation Safety Officer
NRC—Nuclear Regulatory Committee
OPR—Office of Primary Responsibility
PRSO—Permit Radiation Safety Officer
RAM—radioactive material
RDS—Records Disposition Schedule
RIC—Radioisotope Committee
RICS—Radioisotope Committee Secretariat
RPD—Radiation-Producing Devices
RSOs—Radiation Safety Officers
SSS—Staff Summary Sheet
TLD—Thermo-Luminescent Dosimeters
USAFSAM—U.S. Air Force School of Aerospace Medicine
USFK—United States Forces Korea
USNRC—US Nuclear Regulatory Commission

Terms

ALARA (As Low As Reasonably Achievable)—is a principle of ionizing radiation protection mandated by the U.S. Nuclear Regulatory Commission (10 CFR 20.1003) for its licenses to make every reasonable effort to maintain radiation exposures as far as below the limits as is reasonably achievable. In the USAF, ALARA is a set of management and administrative actions

taken to reduce personnel radiation dosage to as low a level as possible consistent with operational requirements. The ALARA concept was developed in response to scientific evidence that suggests no level of radiation exposure is totally risk free. While the established maximum permissible doses are conservative and offer a low risk of adverse health effects compared to other hazards, every effort should be made to reduce exposures to the lowest possible.

Generator (waste)—For items controlled under a USAF RAM Permit issued to a specific organization, the using activity of the permitted organization will be considered the generator. For commodity type items not covered under a specific USAF RAM Permit, the generator will be the person or activity with property accountability for the item when it is designated as waste.

Ionizing Radiation—Any radiation capable of displacing electrons from atoms or molecules, thereby producing ions. Examples include alpha particles, beta particles, gamma rays or x rays, and cosmic rays.

Radiation Producing Devices (RPD)—Equipment capable of generating ionizing radiation, such as an x-ray machine.

Radiation Safety Officer (RSO)—An individual who provides consultation and advice on the hazards associated with radiation and the effectiveness of measures to control these hazards. An RSO is also responsible for enforcing compliance with all pertinent standards and regulations for ionizing radiation sources. There are three categories of RSOs: Installation RSO, Permit RSO, and Unit RSO.

Installation RSO—An individual designated by the 51 FW/CC to manage the base IRPP.

Permit RSO—An individual approved by the USAF Radioisotope Committee to manage the radiation protection aspects associated with the use of radioactive materials for which a specific USAF RAM Permit has been issued.

Unit RSO—An individual designated by the unit commander to act as a focal point for the unit on radiation protection matters. Each unit that operates RPD or uses radioactive materials appoints a unit RSO.

Radioactive Material (RAM)—Material that contain radioactive isotopes or generate ionizing radiation.

Thermo-luminescent Dosimeter (TLD)—A passive radiation monitoring device consisting of a Thermo-luminescent card and holder. The whole body TLD monitors for beta, gamma, and x-ray exposures.

USAF Radioactive Material Permit (RAM Permit)—A written authorization from the USAF Radioisotope Committee (RIC) for USAF organizations to receive, possess, distribute, use, transfer, or dispose of specific radioactive materials.

USAF Radioisotope Committee (RIC)—A committee established to provide USAF administrative surveillance over all radioactive materials.