BY ORDER OF THE COMMANDER
62D AIRLIFT WING (AMC)

62 AIRLIFT WING INSTRUCTION

48-148

21 MARCH 2024

Aerospace Medicine

IONIZING RADIATION SAFETY

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available on the e-Publishing website at **www.e-publishing.af.mil** for downloading or ordering.

RELEASABILITY: There are no releasability restrictions on this publication.

OPR: 62 MDS/SGPB

Certified by: 62 MDS/CC
(Col Karen E. Bowman)

Supersedes: 62AWI48-148, 7 July 2015

Pages: 16

This instruction implements Department of Defense Instruction (DODI) 6055.08, *Occupational Ionizing Radiation Protection Program*, Air Force Policy Directive (AFPD) 40-2, *Radioactive Materials (Non-Nuclear Weapons),* Air Force Manual (AFMAN) 40-201, *Radioactive Materials Management*, AFMAN 48-148, *Ionizing Radiation Protection,* AFI 84-103, *Department of the Air Force Heritage Program*, AFI 91-108, *Air Force Nuclear Weapons Intrinsic Radiation and 91(B) Radioactive Material Safety Program*, Department of the Air Force Manual (DAFMAN) 48-125, *Personnel Ionizing Radiation Dosimetry*, and Department of the Army Pamphlet (DA PAM) 385-24, *The Army Radiation Safety Program*. It establishes the Team McChord radiation safety program, including specific requirements for protection of personnel and their dependents from ionizing radiation. This instruction applies to all uniformed personnel, civilians, and individuals living and working on Team McChord who might be exposed to ionizing radiation sources. Non-ionizing radiation sources such as lasers and electromagnetic frequency emitters are not covered by this instruction. This instruction implements the "As Low As Reasonably Achievable" (ALARA) concept for control of ionizing radiation. It specifies local management procedures that are required in order for radiation exposures to be kept at a minimum and to prevent loss of control of radioactive material. This instruction requires collecting and maintaining information protected by the Privacy Act of 1974 authorized by Section 20.2106(a) and (c), 10 Chapter I, Code of Federal Regulations (10 CFR 20.2106, *Records of individual monitoring results*, (a)(c)) as directed by E.O. 12196, 29 CFR 1910.1096, *Ionizing Radiation*, (b)(2)(iii), (n) and (o), implemented by DAFMAN 48-125 the USAF Master Radiation Exposure Registry. System of records notice F044 AF SG O, *United States Air Force Master Radiation Exposure Registry* applies. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with

AFI 33-322, *Records Management and Information Governance Program*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at **https://www.my.af.mil/afrims/afrims/afrims/rims.cfm**. Refer recommended changes and questions about this publication to the office of Primary Responsibility (OPR) using the AF IMT 847, *Recommendation for Change of Publication*. See **Attachment 1** for a Glossary of References and Supporting Information. This publication may not be supplemented or further implemented or extended.

SUMMARY OF CHANGES

This document has updated the Team McChord Radiation Safety Officer's responsibilities, and includes substantial rewrites to stay in compliance with AFMAN 48-148.

Chapter 1

RESPONSIBILITIES

1.1. 62d Airlift Wing Commander/AF Senior Service Component Commander.

1.1.1. Ensures that all Team McChord activities comply with applicable AF directives covering the usage of radiation producing devices to include the permitting, procurement, storage, handling, and accountability for disposal of radioactive material and the reporting of incidents or accidents to appropriate authorities.

1.1.2. Ensures the Team McChord radiation safety program is comprehensive, compliant with current requirements, and fully integrates with the radiation safety programs of all units supported by the Team McChord. These units include: 62 AW, 446 AW, 627 ABG, WADS, 22 STS, 1 ASOG, 1 CWS, 373 TRS Det 12, and 252 COG located on McChord Field.

1.1.3. Appoints, in writing, a qualified individual to be the Team McChord Radiation Safety Officer (RSO), and may designate an Alternate Team McChord RSO, which may act with full responsibilities of the designated Team McChord RSO in his/her absence. This individual is usually the 62d Medical Squadron Bioenvironmental Engineer, but may be a senior Bioenvironmental Engineering technician, or another qualified individual as appropriate.

1.1.4. Endorses the annual INRAD safety review IAW AFI 91-108, paragraph 2.10.2.7.

1.2. Organization or Unit Commanders, as appropriate.

1.2.1. Designate, in writing, a Unit RSO (URSO) and/or a Permit Radiation Safety Officer (PRSO), when required by AFMAN 40-201, AFMAN 48-148, or AFI 91-108 and provide a copy of the appointment letter to the Team McChord RSO.

1.2.2. Ensure personnel in his or her command who receive, distribute, use, or dispose of radioactive material or work with radiation producing devices or material comply with all applicable protection standards and the ALARA concept.

1.2.3. Ensure the timely reporting of accidents or incidents involving radioactive material or radiation producing devices to the Team McChord/CC and Team McChord RSO according to requirements in DAFI 91-204, AFMAN 91-221, and AFMAN 40-201.

1.2.4. Notify the Team McChord RSO before making changes regarding the storage and usage of radioactive material or radiation sources which may increase the potential for personnel exposures.

1.3. Installation RSO.

1.3.1. The Installation RSO is appointed IAW DA PAM 385-24 by the JBLM Commander and is assigned to the Joint Base Lewis-McChord (JBLM) Safety Office, DSN 357-4011, COMM 253-967-4011.

1.3.2. Administers the Installation Radiation Safety Program by compiling annual inventories, assisting unit RSOs with training and technical questions, overseeing acquisition and use of sources of ionizing and non-ionizing radiation, and investigating abnormal incidents or exposures involving radiation.

1.3.3. Is delegated the authority to suspend installation operations involving RAM that pose a significant health risk to personnel, present a clear violation of regulations or requirements, or present a high risk of negative impact to operations, material, or real estate.

1.3.4. Approves the procurement, acceptance, transfer, and use of all RAM on the installation, including those from non-USAF organizations IAW DA PAM 385-24 and AFMAN 40-201.

1.3.5. Reviews construction projects and facility designs to ensure radiation safety and establishes procedures to review and approve contractor use of radioactive material (such as permitted density instruments) prior to use on JBLM.

1.3.6. Serves as the JBLM point of contact for all issues related to the proper receipt and disposal of radioactive materials.

1.4. Team McChord RSO.

1.4.1. Coordinates the Team McChord radiation safety program with the Installation RSO. Informs the Installation RSO of any Team McChord radiation safety issues and coordinates visits to Team McChord units.

1.4.2. Maintains unit RSO appointment letters and provides information to unit RSOs concerning radiation safety surveys.

1.4.3. Training.

1.4.3.1. Ensures radiation training is conducted annually for all personnel that have the potential to be occupationally exposed to 100 mrem in a year IAW AFMAN 48-148, paragraph 3.3.1.

1.4.3.2. PNAF crew members will accomplish initial and 15-month recurring INRAD training IAW AFI 91-108, paragraph 2.11.4.3.

1.4.4. Monitors exposures to ionizing radiation with the Optically Stimulated Luminescence (OSL) Program for Team McChord units IAW DAFMAN 48-125.

1.4.5. Conducts routine surveillance in all areas where radioactive materials or radiation producing devices are stored or used. Surveillance will be conducted IAW Air Force Radioisotope Committee (RIC) permit requirements and will follow all Air Force and federal guidelines.

1.4.6. Documents all permitted and Generally Licensed Device (GLD) radioactive materials surveillance in the RAMMIS inventory system.

1.4.7. Serves as the point of contact concerning radiation safety for Team McChord with the Air Force RIC, AFMRA/SG3PB, and HQ AFIA/SGI.

1.4.8. Ensures inventory and leak testing of Team McChord permitted radioactive material and generally licensed devices are conducted according to the permit and/or manufacturer requirements.

1.4.9. Provides Team McChord personnel with personnel dosimetry monitoring, interprets results, and conducts investigations into abnormal exposures when the action level has been exceeded. Investigations will be conducted by the Team McChord RSO and provided to the installation RSO. The investigation action level for Team McChord is 50 mrem for quarterly dosimetry results and 10 mrem for monthly dosimetry results.

1.4.10. Manages the distribution and record keeping requirements of the Team McChord personnel dosimetry program for occupational exposures.

1.4.11. Provides consultation and advice on the personnel hazards associated with radiation and the effectiveness of control measures.

1.4.12. Performs periodic monitoring of museum display aircraft belonging to Team McChord IAW AFI 84-103, paragraph 10.5.4.

1.4.13. At least annually, in conjunction with the 62 AW Nuclear Surety Manager and the 4 AS URSO, conduct an annual review of the 4 AS INRAD safety program IAW AFI 91-108, paragraph 2.11.2 and 2.11.3.

1.4.14. At least annually, brief the 62 AW/CC, customarily at the Air Force Environmental, Safety, and Occupational Health Council on radiation protection topics, including a review of this instruction, an annual INRAD safety review, receipt of new material, status of wing permits and inspections.

1.5. Unit Radiation Safety Officer (URSO).

1.5.1. Provide initial and annual unit radiation safety training to all affected members describing hazards and precautions applicable to radiation. PNAF crew members will accomplish initial and 15-month recurring INRAD training IAW AFI 91-108, paragraph 2.11.4.3.

1.5.2. Train users of radioactive materials the hazards associated with and precautions in place to keep exposure ALARA.

1.5.3. Copies of training records will be maintained to show regulatory compliance for at least three years IAW AFMAN 48-148, paragraph 3.3.3. and AFI 91-108, paragraph 2.11.4.3.

1.5.4. Ensure all personnel in their unit on the Air Force personnel dosimetry program receive and follow written guidelines on wear and storage of radiation dosimeters.

1.5.5. Coordinate with the Team McChord RSO during training, routine surveillance, inventories, and hazard evaluations of ionizing radiation sources.

1.5.6. Coordinate with the Team McChord RSO before initiating any project which includes procurement, change of storage, and/or disposal of radioactive material or devices.

1.5.7. Notify the Team McChord RSO immediately for any radioactive item that is lost, damaged, or suspected to be leaking.

1.5.8. Notify the Team McChord RSO immediately of any unusual radiation exposure incident, and assist in the investigation of the alleged incident.

1.5.9. Ensure radiation workers who believe they may be pregnant report as soon as possible to the McChord Airman's Clinic (contractor personnel cannot be directed to see a medical provider). If an off-base health care provider is used, have the worker report to the 62 MDS Public Health Element.

1.6. Permit Radiation Safety Officer (PRSO).

1.6.1. With the assistance of the Team McChord RSO, prepares applications for new or renewed radioactive permits and ensures generally licensed devices are registered with the AF Radioisotope Committee IAW AFMAN 40-201.

1.6.2. Enforces compliance with permit requirements for storage and use of radioactive materials, ensures compliance issues are addressed with the responsible commander, and unsafe operations are ceased until corrected.

1.6.3. Ensures physical inventories and leak tests are conducted upon receipt and at intervals specified in the permit.

1.6.4. Notifies the Team McChord RSO before initiating any project which involves procurement, change of storage, and/or disposal of radioactive material or devices.

Chapter 2

PROCEDURES FOR RADIOACTIVE MATERIALS

2.1. Requisition of Radioisotopes.

2.1.1. An AF Radioactive Material (RAM) Permit may be required for the possession and use of special purpose, non-stock-listed and/or high intensity radioactive items. Delivery of such items cannot be accepted until a permit is issued by the AF Radioisotope Committee. The proposed using organization will contact the Team McChord RSO who will assist in preparation of the permit application IAW AFMAN 40-201. The Team McChord RSO will act as the liaison between the proposed user and the RIC.

2.1.2. Other items containing radioactive material sources may be covered under a general license from the Nuclear Regulatory Commission (NRC). Before receiving these items there must be coordination with the Team McChord RSO to verify shipping and storage requirements are met. These items must also be registered with the Team McChord RSO upon receipt for entry into RAMMIS, the AF Radioisotope Committee inventory tracking system.

2.2. Reporting/Certification.

2.2.1. A condition for continuance or issuance of an AF RAM permit is that the permittee comply with all requirements contained in the RAM permit.

2.2.2. Any incident involving radioactive materials other than those in nuclear weapons or nuclear weapons components will immediately be reported to the Wing Command Post, Team McChord RSO, and the AF Radioisotope Committee. If there is any uncertainty about reporting the incident, it will be reported. Failure or delay in reporting can result in unfavorable publicity and may imperil the continuance of the Air Force Single Broadscope Radioactive Materials License issued by the NRC. The emergency phone number for the Radioisotope Committee or AFMSA/SG3PB is the Andrews AFB Command Post DSN 312-858-5058 or Commercial 301-981-5058, ask for the Radioisotope Committee Secretariat. Preferably, the Team McChord RSO should contact the Radioisotope Committee.

2.3. Receiving.

2.3.1. Upon receipt of any package labeled with a radioactive White I, Yellow II, or Yellow III label or any damaged package containing radioactive material, the receiver will notify Team McChord RSO, DSN 982-3921, immediately so that a package survey may be performed.

2.3.2. Upon receipt of radioactive material packages other than those in 2.3.1., the receiver will notify Team McChord RSO within one duty day so that a package survey may be performed.

2.4. Shipping.

2.4.1. All item records for radioactive materials will be coded with a shipment exception code that will prevent automatic shipments.

2.4.2. Team McChord organizations shipping radioactive materials will contact the Team McChord RSO to coordinate package surveys to monitor for radiation and to validate proper shipping classification and labeling requirements. Shippers will ensure the outside container has the appropriate labels affixed to indicate radioactive material.

2.4.3. Shipments of radioactive material, by or to, base organizations without approval from the JBLM Installation RSO or the Team McChord RSO are prohibited.

2.5. Storage:

2.5.1. Radioactive materials will be stored in designated areas and those areas will be posted with the appropriate hazard signs as determined by the Team McChord RSO and/or permit RSO.

2.5.2. The Team McChord RSO and/or permit RSO will coordinate annual surveillance of radioactive material storage areas, where required, to ensure that occupational and public dose rates are below applicable limits.

2.5.3. When approved by the Team McChord RSO, sealed sources which are exempt from license requirements IAW AFMAN 40-201, paragraph 3.3.2. may be stored in unrestricted areas where containers are properly labeled, secured, and radiation levels do not exceed 2 mrem/hr, one meter from any container in the storage configuration.

2.6. Contractor Use of Radioactive Materials on JBLM – McChord Field.

2.6.1. Non-Air Force organizations that bring radioactive materials or conduct operations involving radioactive material on JBLM - McChord Field require approval of the installation commander or designee. The JBLM Installation RSO is the commander's designee at JBLM - McChord Field, DSN 357-4011, COMM 253-967-4011.

2.6.2. The Directorate of Contracting and contract monitor will inform contractors of the requirement for local approval for use of radioactive materials on JBLM - McChord Field. The contracting officer will also ensure notification requirements are included in local contracts awarded/issued after receipt of notification from the requiring activity. The contracting officer will notify the JBLM Installation RSO when a contractor wishes to bring radioactive materials on base.

2.7. Radioactive Material Disposition Procedures.

2.7.1. Any organization requiring disposal of any item containing a radioactive material source will contact the Team McChord RSO for instruction. The Team McChord RSO will then determine the most feasible method of disposal including:

2.7.1.1. Consulting with the manufacturer of the item to see if it can be returned to them for disposition.

2.7.1.2. Consulting with Air Force Radioactive Recycling and Disposal (AFRRAD), Wright-Patterson AFB, Ohio to determine if the item can be recycled or to get disposal instructions.

2.7.2. In all cases, the Team McChord and/or permit RSO will ensure that the disposal of any permitted materials or generally licensed devices are coordinated through the Air Force Radioisotope Committee, appropriate procedures are followed, and documentation is maintained.

2.7.3. Transfer or disposal of radioactive items through the Defense Reutilization and Marketing Office (DRMO) is prohibited.

Chapter 3

PROCEDURES FOR X-RAY PRODUCING EQUIPMENT.

3.1. The Team McChord Units using x-ray equipment will notify the Team McChord RSO when new equipment is acquired or installed, when current equipment operating parameters are changed, or when facility modifications are to be accomplished.

3.2. The Team McChord RSO will conduct routine radiation safety surveys of workplaces where x-ray equipment is used.

3.3. The unit RSO, with the assistance of the Team McChord RSO, will conduct annual radiation safety training for all personnel who routinely work with x-ray producing equipment.

3.4. Unit RSOs and radiation workers will immediately report all suspected overexposures to the Team McChord RSO. Unit RSOs and radiation workers will assist Team McChord RSO with investigations of abnormal exposures and incidents.

Chapter 4

AS LOW AS REASONABLY ACHIEVABLE (ALARA)

4.1. The ALARA concept was developed in response to scientific evidence which suggests that no level of radiation exposure is entirely risk-free. It is a policy which states that although there are acceptable, conservative levels of radiation exposure specified by federal regulations which offer a low risk of adverse health effects compared to the other hazards of life and occupation, it is prudent to make every effort to reduce exposures to the lowest levels reasonably achievable, thereby lowering the health risk associated with that exposure. In fact, individual and cumulative radiation exposures must be maintained as close to zero as possible given the type of activities involved, the state of technology, the risk to the individuals exposed and the benefit to society from the activity being accomplished.

4.2. ALARA Commitment. The guidance contained in this instruction provides the basis for conducting an effective ALARA program. The radiation safety program in the Team McChord is managed by the Team McChord RSO through this instruction for the Wing Commander. The Team McChord is committed to the concept of ALARA.

Chapter 5

RADIATION SAFETY TRAINING

5.1. IAW AFMAN 48-148, paragraph 3. 5., training shall be provided to individuals, who have the potential to be occupationally exposed to 1 mSv (100 mrem) in a year, or when the IRSO or Team McChord RSO determines the training is necessary.

5.1.1. Radiation safety training is required:

5.1.1.1. Initially, before the individual is permitted to assume duties with or in the vicinity of radioactive material.

5.1.1.2. Annually during a refresher training course.

5.1.1.3. When there is a significant change in duties or radiation safety requirements.

5.1.2. PNAF crew members will accomplish initial and 15-month recurring INRAD training IAW AFI 91-108, paragraph 2.11.4.3.

5.2. Radiation Safety Training shall be provided by:

5.2.1. The Permit RSO or the Unit RSO, with the assistance of the Team McChord RSO.

5.2.2. Other qualified personnel approved by the Installation RSO or Team McChord RSO.

5.3. Training sessions for individuals who in the course of their duties are likely to receive in a year an occupational dose in excess of 100 mrem shall include but are not limited to the topics described in AFMAN 48-148, paragraph 4.3.1. The topics of training sessions for individuals who do not meet the condition will be determined by the Team McChord RSO commensurate with the radiation hazards present in the workplace.

5.4. Records of all radiation safety training shall be documented and maintained IAW AFMAN 48-148, paragraph 4.3.1.3.

Chapter 6

IONIZING RADIATION DOSIMETRY PROGRAM

6.1. Radiation Workers. Individuals who routinely work with or in the vicinity of sources of ionizing radiation, to include x-rays and radioactive sources, may be designated as radiation workers by the Team McChord RSO based on an evaluation of the potential hazards. IAW the monitoring criteria of AFMAN 48-148 and DAFMAN 48-125, radiation workers are issued OSL dosimeters which are exchanged either monthly or quarterly as determined by the Team McChord RSO.

6.2. The supervisor, or designated radiation dosimeter monitor, of a newly assigned worker has the responsibility of requesting radiation monitoring for that individual. Monitoring shall be required if the worker is located in an area designated by the Team McChord RSO as a potential radiation hazard area or if the individual is assigned duties classified as radiation worker requiring dosimetry.

6.3. Each individual to be monitored shall be provided with a radiation safety briefing to include an explanation concerning proper wearing and storage of the dosimeter and the right to review the dosimetry results.

6.4. Annual Report of Occupational Exposure Dosimetry Results. The US Air Force School of Aerospace Medicine, Radiation Dosimetry Branch (USAFSAM/SDRD) provides the Team McChord RSO, via the Radiation Dosimetry Website, with SDRD Form 1527-1, *Annual Report of Individual Occupational Exposure to Ionizing Radiation*, to each individual entered on the dosimetry program for the previous calendar year. When the forms are received, the Team McChord RSO will review and deliver them with a cover letter accompanying instructions and comments if any to the workplace radiation dosimeter monitors within 30 days of receipt. The forms must be reviewed by each monitored individual and signed. Then, the signed forms will be returned to the Team McChord RSO. The Team McChord RSO ensures that the signed forms will be filed in the individual's medical records IAW DAFMAN 48-125, paragraph 2.5.3. The Team McChord RSO maintains a record copy (signed SDRD Form 1527-1) in each workplace dosimetry binder for 5 years.

6.5. Cumulative History of Occupational Exposure. SDRD Form 1527-2s, *Cumulative History of Individual Occupational Exposure to Ionizing Radiation,* (equivalent to NRC Form 4, *Cumulative Occupational Dose History*), which summarizes an individual's cumulative dosimetry history results will be provided upon written request of the individual, the Team McChord RSO, or other authorized organizations and individuals. All requests other than those made for official Air Force use must have a release signed by the individual for whom the report is requested.

6.6. Visitors to any restricted areas IAW AFMAN 48-148, paragraph 4.2.2.1.2. shall be accompanied by persons knowledgeable about the protection and safety measures in the area and must be provided adequate information and instruction before entering the area. Visitors entering a radiation area or that could incur a deep dose equivalent of greater than 10 mrem shall be provided appropriate personnel monitoring devices. The responsible supervisor shall contact the Team McChord RSO for coordination of issuing the monitoring devices to the visitor.

6.7. Investigation Levels. In addition to federally imposed dose limits (ref: AFMAN 48-148, Attachment 4), the NRC has also recommended the adoption of investigation levels for radiation

workers. These levels are not legal limits. They are values arbitrarily set normally at 10 percent of the federally mandated limits to assist radiation safety program monitors to comply with the ALARA concept by anticipating potential difficulties and initiating corrective actions. Therefore, investigations shall be accomplished in a timely manner by the Team McChord RSO for doses received by Team McChord personnel in excess of the established ALARA levels. The investigation shall consider each such exposure in comparison with those of others performing similar tasks.

6.7.1. Locally Established Investigation Levels. Based on review of historical personnel dosimetry data at McChord Field, the Team McChord RSO has established the following investigation levels IAW AFMAN 48-148, paragraph 4.5.2.3.

6.7.1.1. A dose in excess of 10 mrem per monthly OSL for pregnant workers.

6.7.1.2. A dose in excess of 50 mrem per quarterly OSL for regular radiation workers.

6.7.2. If any Team McChord personnel receive a dose in excess of the established investigation levels for the month, or quarter, an investigation is initiated by the Team McChord RSO. A memorandum or a formal report is written as necessary with corrective actions taken as deemed appropriate for reducing exposure levels. This memorandum will be provided to the IRSO and the URSO or PRSO when applicable.

SERGIO E. ANAYA, Colonel, USAF
Commander, 62d Airlift Wing

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

DoDI 6055.08, *Occupational Ionizing Radiation Protection Program*, 9 April 2021

AFPD 40-2, *Radioactive Materials (Non-Nuclear Weapons),* 18 June 2019

AFMAN 40-201, *Radioactive Materials Management*, 28 March 2019

AFMAN 48-148, *Ionizing Radiation Protection,* 19 July 2020

AFI 84-103, *U.S. Air Force Heritage Program*, 11 May 2021

AFI 91-108, *Air Force Nuclear Weapons Intrinsic Radiation and 91(B) Radioactive Material Safety Program,* 13 May 2020

AFI 91-202, *The US Air Force Mishap Prevention Program*, 11 Mar 2020

DAFI 91-204, *Safety Investigations and Reports,* 09 March 2021

AFI 33-322 *Records Management and Information Governance Program*, 27 July 2021

DAFMAN 48-125, *Personnel Ionizing Radiation Dosimetry*, 26 October 2020

AFMAN 91-221, *Weapons Safety Investigations and Reports*, 25 March 2020

Adopted Forms

AF Form 847, Recommendation for Change of Publication

SDRD Form 1527-1, Annual Report of Individual Occupational Exposure to Ionizing Radiation

SDRD Form 1527-2, Cumulative History of Individual Occupational Expo sure to Ionizing Radiation

NRC Form 4, Cumulative Occupational Dose History

Abbreviations and Acronyms

AFRRAD—Air Force Radioactive Recycling And Disposal

ALARA—As Low As Reasonably Achievable

BE—Bioenvironmental Engineering

CFR—Code of Federal Regulations

DRMO—Defense Reutilization and Marketing Office

INRAD—Intrinsic Radiation

IRSO—Installation Radiation Safety Officer

JBLM—Joint Base Lewis-McChord

NRC—Nuclear Regulatory Commission

OSL—Optically Stimulated Luminescence

PNAF—Prime Nuclear Airlift Force

RAM—Radioactive Material

REM—Roentgen Equivalent Man

RIC—Radioisotope Committee

RSO—Radiation Safety Officer

Terms

As Low As Reasonably Achievable (ALARA)—The ALARA concept is defined as that set of management and administrative actions taken to reduce personnel radiation doses to as low a level as possible consistent with existing technology, costs, and operational requirements. The ALARA concept was developed in response to scientific evidence that no level of radiation exposure is totally risk free (a risk free threshold cannot be established). While the established maximum permissible doses are conservative and offer a low risk of adverse health effects compared with other hazards of life and occupation. It is prudent that every effort be made to reduce exposures to the lowest level that is reasonably achievable and thereby lower the health risk associated with that exposure.

Exposure—In radiation protection, the act or occurrence of being exposed to ionizing radiation or radioactive material. In risk management, the frequency and length of time subjected to a hazard.

Hazard—Any real or potential condition that can cause injury, illness, death of personnel, damage to or loss of equipment or property, or mission degradation.

Intrinsic Radiation—Radiation emitted through the weapon surface or directly from exposed components of nuclear weapons.

Investigation Level—A dose set by the installation RSO that requires further investigation when exceeded. Levels are normally tailored to each practice based on historical dosimetry records. The investigation is conducted to determine causative factors, and identify corrective measures, as appropriate.

Ionizing Radiation—Any electromagnetic or particulate radiation capable of producing ions, directly or indirectly in its passage through matter. Ionizing radiation includes gamma rays, X rays, alpha particles, beta particles, neutrons, protons and other particles and electromagnetic waves capable of producing ions.

Nuclear Regulatory Commission—An agency established by Title II of the Energy Reorganization Act of 1974 (Public Law 93-438) to regulate byproduct, source, and Special Nuclear Material as provided for by the Atomic Energy Act of 1954, as amended. Within the NRC, final authority rests with the five member Commission acting as a body.

Occupational Dose—The dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or to radioactive material from regulated and unregulated sources of radiation, whether in the possession of the employer or other person. Occupational dose does not include dose received from background radiation; from any medical administration the individual has received; from exposure to patients administered radioactive material and released IAW applicable regulations; from voluntary participation in medical research programs; or as a member of the general public.

Permit RSO—The individual designated by the unit commander to continuously monitor the radiation protection program for a USAF Radioactive Material Permit. Each permittee (unit commander) must appoint a Permit RSO in the permit application process to be approved by the Installation RSO.

Rad—A conventional unit for the measurement of absorbed dose. One rad is equal to an absorbed dose of 100 ergs per gram of material (1 rad = 0.01 Gy = 1 cGy).

Radiation Safety Officer—An individual with specific education, military training, and professional experience in radiation protection practice appointed by a commander or the USAF RIC to manage radiation safety programs. The term "Radiation Safety Officer" is a functional title and does not denote a commissioned status or specialty code. An RSO should be the most technically qualified person available. The RSO must have the education, military training, and professional experience needed for the job. Take care when addressing RSO qualifications and duties to distinguish between installation and permit RSOs. Individuals appointed as the installation RSO may not always have the specific technical experience and training needed to qualify as the permit RSO.

Roentgen Equivalent Man (rem)—The conventional unit of any of the quantities expressed as dose equivalent. The dose equivalent in rems is equal to the absorbed dose in rads multiplied by a radiation quality factor, Q.

Team McChord—Includes 62 AW, 446 AW, WADS, 627 ABG, 22 STS, 1 ASOG, 1 WS, 373 TRS Det 12, 262 COS.

USAF Radioactive Material Permit—Written authorization from the USAF RIC for AF organizations to receive, possess, use, distribute, store, transport, transfer and dispose of radioactive materials. Permits parallel NRC licenses in applications and scope. Unlike the NRC, a single permit may authorize Byproduct, Source, Special Nuclear Material, Accelerator Produced Radioactive Material and Naturally Occurring Radioactive Material.

USAF Radioisotope Committee (RIC)—A committee established IAW requirements of the

USAF Master Materials License to coordinate the administrative and regulatory aspects of permitting, acquiring, receiving, possessing, using, distributing, storing, transporting, transferring and disposing of all RAM in the USAF, except the material transferred from the Department of Energy to the Department of Defense in nuclear weapon systems, certain radioactive parts of weapons systems and nuclear reactor systems, and parts and fuel controlled under Section 91(a) or 91(b) of the Atomic Energy Act. It is primarily composed of stake—holder representatives from the Office of the Secretary of the Air Force, Headquarters Air Force, and field operating agencies.