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22D AIR REFUELING WING**

**MCCONNELL AIR FORCE BASE  
INSTRUCTION 48-104**



**22 NOVEMBER 2013**

***Aerospace Medicine***

**IONIZING RADIATION PROTECTION  
PROGRAM**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFI 48-148, *Ionizing Radiation Protection*, AFI 40-201, *Managing Radioactive Materials in the US Air Force*, AFMAN 48-125, *Personnel Ionizing Radiation Dosimetry*, and 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 22 ARW Occupational Health Program. Section 12 of this instruction applies to all organizations and persons, including contractors, conducting operations involving ionizing radiation sources on 22 ARW properties. This instruction is derived from documents listed as references, in the event of a conflict with an Air Force Instruction, defer to the higher guidance. This instruction directs collecting and maintaining information subject to the Privacy Act of 1974 in regards to F044 AF SG of the USAF Master Radiation Exposure Registry.

Ensure that all records created as a result of processes prescribed in this publication are maintained In Accordance With (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW with the Air Force Records Information Management System (AFRIMS) located at <https://www.my.af.mil/gcss-af61a/afrims/afrims/>. 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 Form 847s from the field through the appropriate functional’s chain of command.

**SUMMARY OF CHANGES**

This document has been substantially revised in its entirety and must be completely reviewed. Major changes include roles and responsibilities of the Installation Radiation Safety Officer have been modified and expanded. New functional training requirements are outlined.

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## Chapter 1

### RESPONSIBILITIES

#### 1.1. Installation Commander (22 ARW/CC) will:

- 1.1.1. Appoint, in writing, a qualified individual to be Installation Radiation Safety Officer (RSO), as appropriate.
- 1.1.2. Direct all organizations, including tenant units and contractors, desiring to use ionizing radiation on the installation to obtain authorization from the Installation Radiation Safety Officer.
- 1.1.3. Support the ALARA concept and ensure subordinate units follow the direction of this instruction and the Installation RSO.

#### 1.2. Organization, Unit, and/or Wing Commanders During Contingencies, and Deployed AF AOR Commanders will:

- 1.2.1. Appoint, in writing, a qualified individual to be the deployed IRSO, as appropriate. Qualifications for IRSOs are listed in AFI 48-148 [Attachment 3](#). Ensure all practices meet the requirements of this AFI.
- 1.2.2. Manage interventions, as defined in this instruction, using ORM and the guidance in this AFI.
- 1.2.3. Include the Deployed Medical Commander (DMC) or deployed Senior Medical Officer (SMO) in the operations and planning staff for all tasks with radiation safety implications. Convey intelligence regarding the nature and extent of actual or potential radiological hazards to the DMC or deployed SMO.
- 1.2.4. Request additional expertise and support, as necessary, from higher headquarters and from host nation radiation protection experts, as necessary.
- 1.2.5. Establish or confirm a dose IAW the guidance in AFI 48-148 [Table A7.2](#), for public interventions, and AFI 48-148 [Table A8.1](#), for operations involving interventions.
- 1.2.6. Implement control measures necessary to contain the radiological hazard as indicated in AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*.
- 1.2.7. Ensure facilities, equipment and protective clothing are decontaminated to the levels designated in AFI 48-148 [Table A5.2](#); [Table A8.2](#) and [Table A8.3](#), as applicable; or IAW host nation agreement.

#### 1.3. Installation Radiation Safety Officer (RSO) (22 AMDS/SGPB) will:

- 1.3.1. Establish and manage an installation-wide radiation protection program through this instruction and AFI 48-148, Ionizing Radiation Protection, AFI 40-201, AFI 91-108, and AFMAN 48-125. The program must include periodic, but at least annual, reviews of procedures and practices, facility design and classification, training, exposure control, monitoring and surveillance activities. IRSOs shall provide oversight of permitted activities. This includes, but is not limited to, ensuring primary and alternate PRSOs are correctly identified on existing USAF radioactive Material Permits, and verifying the accuracy of

RAM inventories. Reports deviations from this AFI and the base instruction or supplement, as applicable, to the Installation Commander and AFMSA/SG3PB or AFSC/SEW, as applicable.

1.3.2. Ensures the overall coordination of installation radiation safety activities. Provides direct support and information to the installation commander on radiation health and safety issues and effectiveness of measures to control radiation hazards to comply with Federal, DoD and AF requirements.

1.3.3. Keep the installation commander informed about radiation health and safety issues and effectiveness of measures to control ionizing radiation hazards.

1.3.4. Identify units that require a Unit Radiation Safety Officer (RSO) and Thermo luminescent Dosimetry Program.

1.3.5. Assists commanders with the development of installation radiation safety operating instructions or radiation safety manuals, as appropriate.

1.3.6. Provide consultant support to the installation commander, unit commanders, Unit RSOs, and workplace supervisors on radiation protection issues.

1.3.7. Assist Unit RSOs as necessary to ensure comprehensive unit radiation protection programs are established, including receipt, use, storage and disposal of radioactive materials.

1.3.8. Perform initial and periodic hazard evaluations of radiation sources.

1.3.9. Define health hazards, define hazardous areas, and recommend proper control measures to commanders and users.

1.3.10. Inform the 22 ARW/CC, fire department, and civil engineering readiness flight of non-Air Force uses of radioactive materials on the installation.

1.3.11. Oversees the Base Thermo luminescent Dosimetry Program. Manages the distribution and recordkeeping requirements of the personnel dosimetry and bioassay program for both occupational exposures and interventions. Ensures discrepancies in radiation dosimetry reports due to lost or damaged radiation monitoring devices are corrected in the MRER, in coordination with the AF Dosimetry Center. Corrections shall be accomplished within 30 days of identification.

1.3.12. Provide copy of annual report of occupational exposure (SDRD Form 1527-1) to routinely monitored personnel on an annual basis.

1.3.13. Conduct or arrange for investigations of suspected ionizing radiation overexposures IAW AFI 48-148, Para 3.5.4.

1.3.14. Ensure all personnel who have been determined by the Installation RSO as high risk of receiving radiation exposures are trained in accordance with AFI 48-148, Para 3.3.

1.3.15. Assist civil engineering to ensure the adequate design of facilities that will contain radiation sources.

1.3.16. Oversees routine radiological decontamination and site remediation activities

1.3.17. Conducts public dose assessments and radon exposure monitoring described in AFI 48-148 Chapter 5.

1.3.18. Brief at least annually the Environmental, Safety and Occupational Health Council (ESOHC) or equivalent, on use(s) of radioactive material on the installation. . Provide summaries and trends of personnel dosimetry results and surveys to demonstrate exposures are ALARA.

**1.4. Thermo luminescent Dosimetry (TLD) Program Manager:**

1.4.1. Conducts the daily operation of the TLD program to monitor exposures of personnel working with ionizing radiation sources.

1.4.2. Maintains TLD program documentation.

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

1.4.4. Ensure annual TLD reports (SDRD Form 1527-1) are filed in the individual's outpatient medical record annually.

1.4.5. Brief personnel enrolling in the Dosimetry Program on the following:

1.4.5.1. Proper wear and storage of TLDs.

1.4.5.2. Hazards associated with ionizing radiation and methods to keep their exposure ALARA

1.4.5.3. Hazards associated with exposure to ionizing radiation during pregnancy (mainly for female workers and their supervisors).

1.4.5.4. Their responsibility to report to Public Health (PH) as soon as possible following confirmation of pregnancy, and the need to be placed on a monthly dosimeter exchange frequency per Installation RSO's direction.

**1.5. Permit Radiation Safety Officers will:**

1.5.1. Be appointed in writing by USAF Radioisotope Committee (RIC) RAM Permit (hereto referred to as permit) Commander and approved by RIC.

1.5.2. Follow all requirements specified in the permit.

1.5.3. Obtain training by Base RSO and follow all provided instructions.

1.5.4. Ensure compliance with AFI 40-201, paragraph 3.7. and paragraph 3.8. in entirety when RAM is transferred or shipped.

1.5.5. Maintain and manage records as required by this AFI 48-148.

**1.6. Civil Engineering (22 CES/CC) will:**

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

1.6.2. With the guidance of the IRSO, develop plans for emergency response and mitigation of major accidents, enemy attack and terrorist use of weapons of mass destruction involving nuclear or radiological materials consistent with ALARA and less than guidance presented in AFI 48-148 **Attachments 7** and **Attachment 8**, respectively.

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

1.6.4. Manage and control radioactive wastes generated during contingency actions . Ensure wastes are disposed of via the Air Force Radioactive Recycling and Disposal (AFRRAD) Office IAW AFIs 40-201, 91-108 and 32-7086.

1.6.5. Immediately notifies the installation RSO of damage (e.g. fire, natural disaster, etc.) to buildings or sites storing and/or containing radioactive material. This includes any incident or event where buildings or sites containing and/or storing radioactive material are potentially in danger and/or risk because of their close proximity to the incident.

1.6.5.1. Mitigate structures where exposures to radon or radon progeny exceed the remedial action level specified in AFI 48-148 **paragraph 5.3.1**. Incorporate radon reduction measures in the construction of new facilities at medium and high risk installations as identified in the 1987 Radon Assessment and Mitigation Program (RAMP).

1.6.6. Conduct training IAW AFI 10-2501, Air Force Emergency Management (EM) Program Planning and Operations, and include all subjects identified in AFI 48-148 **Chapter 6**.

#### **1.7. Contracting Squadron (22 CONS/CC) will:**

1.7.1. Ensures provisions of **Attachment 3** and **Attachment 4** are included in statement of work (SOW) involving contractor use of RAM.

1.7.2. Will involve Bioenvironmental Engineering (BE) Flight in any pre-performance conference involving contractor use of RAM.

#### **1.8. Logistics Readiness Squadron (22 LRS/CC) will:**

1.8.1. Coordinate all activities involving radioactive material shipment off or onto McConnell property with the Installation RSO.

1.8.2. Prepare and transport radioactive material shipments in accordance with 10 CFR 71, *Packaging and Transportation of Radioactive Material*, 49 CFR, *Transportation*, and Defense Transportation Regulation (DTR) DOD 4500.9-R-Part II, *Cargo Movement*, as applicable.

1.8.3. Develop and implement procedures to prevent the inadvertent transfer of radioactive material/items of supply containing radioactive material/or any item of suspect through the Defense Reutilization Management Office (DRMO) system.

1.8.4. Establish procedures to notify the installation RSO in the event of an incident(s) or the need to perform radiological survey(s) of material that has been identified by DRMO as potentially containing radioactive and/or components.

#### **1.9. The Medical Group Commander (22 MDG/CC) will:**

1.9.1. Ensure medical teams, 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.

1.9.2. Ensure all suspected radiation overexposures are investigated and properly documented by Bioenvironmental Engineering and Public Health.

1.9.3. Ensure complete records are maintained in the member's medical record, of either measured or estimated radiation dose received by personnel during occupational practices and/or contingency operations and that all releasable data is available to the monitored individual.

1.9.3.1. Forward dose determinations records to USAFSAM/OEH for incorporation into the MRER (to include locally performed bioassays).

1.9.3.2. Maintain and be able to access all radiation exposure data for organizations or units conducting classified operations.

1.9.4. Ensure collection of bioassay and laboratory specimens as necessary to assess internal exposures from ingested or inhaled RAM or contaminated wounds IAW NATO Allied Engineering Publication-49, *NATO Handbook for Sampling and Identification of Radiological Agents (SIRA)*. Samples shall be forwarded to USAFSAM/OEH for analysis and interpretation.

1.9.5. Ensure compliance through designation of appropriate staff and resources IAW the responsibilities and requirements, to include staffing qualifications, as specified in AFI 48-148 **Chapters 4 and 6**.

1.9.6. Ensure medical follow-up of personnel receiving significant exposures IAW AFI 48-148 **Chapter 6**.

**1.10. The Public Health Flight (22 AMDS/SGPM) will:**

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

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

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

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

1.11.1. Appoint unit RSO in writing for workplaces that use, handle, or store RAM or ionizing radiation-producing device (RPD). Ensure unit RSO meets requirements set by Installation RSO and regulatory guidance.

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

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

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

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

1.11.6. Ensure personnel receive education and training IAW AFI 48-148, Para 3.3.

1.11.7. Contact Base RSO when use of RAM is required to accomplish the unit mission for guidance on whether a RAM permit is required.

1.11.8. Procure protective equipment required by Base RSO or BE Flight for safe use of ionizing radiation. Refer questions regarding the need for specific equipment items to BE Flight or the Base RSO.

1.11.9. Ensure all contractors working for or in their organizations follow the contractor specific instructions covered in [Attachment 3](#) and [Attachment 4](#) of this instruction.

**1.12. Unit Radiation Safety Officer (URSO) will:**

1.12.1. Establish and manage the organization or unit radiation safety program IAW AFI 48-148 Chapter 3, as applicable. The program must include review of procedures and practices, facility design review and classification, training, exposure control activities and routine monitoring and surveillance activities.

1.12.2. Execute the responsibilities outlined in AFI 40-201, AFI 91-108 and AFI 48-148 as they apply to the unit.

1.12.3. Obtain training by Installation RSO or BE Flight technician assigned by Installation RSO on radiation safety hazards and responsibilities.

1.12.4. Ensure all new equipment containing RAM or RPD is coordinated with the Permit and/or Installation RSO.

1.12.4.1. Coordinate Installation RSO approval of equipment containing RAM at least 60 days prior to planned arrival on McConnell AFB. Equipment use and storage may be impacted if a permit is required and not enough time is allotted for the submission and approval.

1.12.4.2. Coordinate Base RSO approval of use of any RPD by government personnel prior to use. This includes medical, industrial and test use.

1.12.4.3. Ensure all contractors using RAM containing or a RPD device in the unit are fully coordinated with the Installation RSO prior to planned arrival or use of equipment on McConnell AFB. See Attachment 3 and Attachment 4 for contractor requirements. This pertains to industrial and medical units.

1.12.5. Ensure personnel properly use, store and exchange TLD devices in a timely manner as described by the BE Flight TLD program manager.

1.12.6. If required by RAM permit or Installation RSO, author a workplace specific radiation safety operating instruction which includes safety controls, use of TLDs, and emergency response procedures.

1.12.7. Provide and record initial and annual radiation safety training to workers.

1.12.8. Immediately notify the Installation RSO of incidents, accidents or unusual circumstances involving ionizing radiation sources or equipment. This includes loss or theft of sources, personal injury, etc. (The BE Flight Primary On-Call technician can be reached through the command post after duty hours.)

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

1.12.10. Provide technical support to organization or unit commanders on radiation protection issues. Keep organization and unit commanders, and the IRSO, informed about radiation health and safety issues and effectiveness of measures to control radiation hazards.

1.12.11. Provide commanders assistance in developing organization specific radiation safety operating instructions and radiation safety manuals.

1.12.12. Assist in suspected overexposure investigations.

1.12.13. Retain records regarding the receipt, use, transfer, and disposal of radioactive materials as required by AFI 48-148.

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

**1.13. Supervisors (with ionizing radiation sources) will:**

1.13.1. Develop and keep current a unit operating instruction to ensure workplace adherence to the requirements of this AFI.

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

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

1.13.4. Ensure protection of Airmen and AF civilians from occupational exposures. 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. Ensure radiation safety procedures are current and adhered to by workers.

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

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

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

1.13.8. 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.

1.13.9. Ensure workers with declared pregnancy notify Public Health of their pregnancy status.

1.13.10. Provide results of dosimetry measurements to workers promptly upon receipt and provide signed confirmation of receipt back to Installation RSO.

1.13.11. Submit requests for radioactive waste disposal to BE Flight, 22 AMDS/SGPB.

1.13.12. Contractors shall comply with this instruction 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.

1.13.13. Ensure protection of the public from non-occupational exposures from AF practices.

**1.14. Workers will:**

- 1.14.1. Follow procedures for safe work practices given in equipment technical orders/manuals and unit operating instructions (OI) and AFI 48-148.
- 1.14.2. Perform operations in a manner that maintains doses ALARA.
- 1.14.3. Accept information, instruction and training concerning protection and safety to conduct work IAW this AFI.
- 1.14.4. 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.
- 1.14.5. Properly use thermo luminescent dosimeters and other personal protection equipment.
- 1.14.6. Review their thermo luminescent dosimetry results and report any errors noted to the Installation RSO.
- 1.14.7. Comply with commander-directed radiation protection programs, dose assessment programs and radiological health surveillance.
- 1.14.8. 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)
- 1.14.9. Notify workplace supervisors of potential violations of this instruction, of unsafe work practices involving radiation sources, or of accidents or incidents involving radiation.
- 1.14.10. Notify workplace supervisors of changes to procedures or operations that could affect exposure, potential violations of this instruction, unsafe work practices involving radiation sources, or accidents or incidents involving radiation.
- 1.14.11. An active duty pregnant female, shall, on becoming aware she is pregnant, notify her Commander, workplace supervisor, and the Public Health office.
- 1.14.12. Civilian workers are strongly encouraged to notify their Commander, 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 2

### AUTHORIZATION FOR IONIZING RADIATION SOURCES

**2.1. 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 McConnell AFB property, with the following exceptions:

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

2.1.2. Radioactive material/devices installed in/on operating aircraft transient to McConnell AFB.

**2.2. Organizations and persons not covered by the 22 ARW 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. Contractor specific instructions are covered in **Attachment 3** and **Attachment 4** of this instruction.

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

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

2.2.3. The Installation RSO will notify the 22 CES/CEF and 22 CES/CEX about the approved radioactive material use on McConnell AFB.

**2.3. Organizations covered by the 22 ARW Occupational Health Program** (22 ARW 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.)

2.3.1. Workplace supervisors will prepare a RPD or RAM request as applicable not covered by an existing approval and submit the request to the Installation RSO.

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

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

2.3.3.1. The Installation RSO will assist the supervisor to prepare a permit application to HQ AFMSA/SGPR.

2.3.3.2. 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 22 AMDS/CC allow 22 AMDS/SGPB to act as the Permit RSO).

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

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

2.3.4.1. All GLD's used on base must be tested for leakage of radioactive material, and proper operation of any on-off mechanism or indicator, if any, at no longer than 6 month intervals.

2.3.4.2. A unit shall not transfer GLD's to another organization unless that organization has specific license to receive that device. Upon transfer of a generally licensed item, a report must be submitted within 30 days to the Nuclear Regulatory Commission (NRC) to include the recipient's contact information and license number, the name, model and serial number of the unit, and the date of transfer.

2.3.5. 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.

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

### Chapter 3

## IONIZING RADIATION EXPOSURE EVALUATION AND CONTROL

### 3.1. The Installation RSO will:

- 3.1.1. 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 48-148.
- 3.1.2. 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.
- 3.1.3. Ensure that occupational and public exposure estimates are documented and associated with the applicable potential exposure group that maintains the radiation source.
- 3.1.4. 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.
- 3.1.5. Add workplaces with ionizing radiation sources to the Bioenvironmental Engineering routine surveillance schedule for periodic reassessment of activities and health risks.
- 3.1.6. Will establish local threshold levels for dose or radionuclide intake, above which an investigation is conducted to determine the causative factors, and identify corrective measures, as appropriate. See [Attachment 2](#) for local threshold levels.

### 3.2. The Workers will use following techniques to ensure dose limits are not exceeded and exposures are ALARA:

- 3.2.1. Time, Distance and Shielding: As appropriate, minimize the time around sources of external radiation, maximize the distance to radiation sources, and utilize radiation shielding between radiation sources and potential exposed personnel to control external radiation doses.
- 3.2.2. Personal Protective Clothing:
  - 3.2.2.1. As appropriate, personal protective clothing including lead aprons, glasses and thyroid shields to protect from x-rays, plastic face shields and glasses to protect from beta particles, and clothing and gloves to protect from contamination shall be used to the greatest extent possible, consistent with the principles of ALARA and ORM.
  - 3.2.2.2. Use of personal protective clothing is not merited where its use may result in: overall more significant internal or external exposure to radiation or other health risks more severe than that posed by the potential radiation exposure.
  - 3.2.2.3. Respiratory protection use shall be IAW AFOSHSTD 48-137, *Respiratory Protection Program*.

## Chapter 4

### EXPOSURE MONITORING (THERMOLUMINESCENT DOSIMETRY (TLD) PROGRAM)

**4.1. 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 AFMAN 48-125.

**4.2. 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 Defense Occupational Environmental Health Readiness System (DOEHRS) database risk assessment.

**4.3. 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.

**4.4. Supervisors will** coordinate unit program requirements and execution (delivery/change out procedures, etc) with the TLD Program Manager.

**4.5. Supervisors will** ensure badges are properly worn and handled per AFMAN 48-125, Personnel Ionizing Radiation Dosimetry.

**4.6. 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.

**4.7. 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.

**4.8. 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.

4.8.1. 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.

4.8.2. 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.

**4.9. 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 ([Attachment 2](#)).

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

4.9.2. 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.

4.9.3. 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 5

### UNIT RADIATION SAFETY PROGRAMS

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

5.1.1. 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:

5.1.1.1. 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.

5.1.1.2. A Unit Radiation Safety Officer that operates under the guidelines set forth in AFI 48-148, Para 2.20.

5.1.1.3. Enrollment in the TLD monitoring program.

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

5.1.2. 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:

5.1.2.1. 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 AFMSA/SGPR.

5.1.2.2. A Permit RSO. The Permit RSO will be a person, appointed in writing by the unit commander, and approved by HQ AFMSA/SGPR.

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

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

5.1.3.1. 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.

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

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

## Chapter 6

### RADIATION SAFETY/ALARA TRAINING

**6.1. 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, Para 3.3.

**6.2. 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. Workplace supervisors are responsible for scheduling and documenting training and maintaining records of training. Training records must be retained for at least five (5) years and must document subjects covered and dates training was provided.

**6.3. 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. Recipients of obtained information shall be required to comply with the requirements of the Privacy Act of 1974.

**6.4. Training may be performed in-house by the unit RSO if** the training plan is approved by the Installation RSO. The training provided must be documented for each employee, and identify subjects covered and dates of training. Documentation must be retained for a minimum of five (5) years. Forward a copy of training records to BE Flight within 30 days after training is provided.

## Chapter 7

### RADIOACTIVE MATERIAL STORAGE, INVENTORY, AND CONTROL PROCEDURES

**7.1. 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.

**7.2. Supervisors will maintain** an inventory of the unit's radioactive material that includes transfer/disposition information when material is taken off of the inventory.

**7.3. 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.

**7.4. 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.

**7.5. 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 8

### EXCESS RADIOACTIVE MATERIAL DISPOSITION

- 8.1.** 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.
- 8.2.** 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 guidance in AFI 40-201 Chapter 3.10.
- 8.3.** The Installation RSO will assist the supervisor to fill out sections of the disposition request, and determine if the material can be recycled through the 88 ABW/EM radioactive material recycling program.
- 8.3.1. If the material can be recycled, the Installation RSO will request recycling instructions from 88 ABW/EM.
  - 8.3.2. If the material cannot be recycled, the Installation RSO will endorse the disposition request and send to the AF Radioactive and Mixed Waste Office (AFRMW), AFIOH/SDRH.
- 8.4.** Supervisors will properly secure, store, label, and keep an inventory of radioactive material pending disposition or pending shipment instructions.
- 8.5.** 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 9

### RADIOACTIVE MATERIAL RECEIPT

- 9.1.** Whenever possible, radioactive material bound for McConnell AFB will be shipped as hazardous material through 22 LRS.
- 9.2.** 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.
- 9.3.** As soon as possible upon receipt of notification, 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.
- 9.4.** 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 10

### RADIOACTIVE MATERIAL SHIPPING

- 10.1.** Organizations intending to ship radioactive materials will contact the Installation RSO and 22 LRS to coordinate proper packaging, labeling, and shipping surveys prior to delivering the item to the shipping organization.
- 10.2.** 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.
- 10.3.** A 22 LRS certified hazardous material shipping technician will ensure the proper packaging, labeling, and manifest information is prepared for the shipment.
- 10.4.** 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.
- 10.5.** Before the radioactive material item is enclosed in packaging, 22 LRS 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 11

### UNSHIELDED INDUSTRIAL X-RAY OPERATIONS

**11.1.** 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.

**11.2.** 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.

**11.3.** 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 appropriate industrial hygiene case file.

**11.4.** 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.

**11.5.** 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 12

### INCIDENT/ACCIDENT/OVER-EXPOSURE PROCEDURES

#### 12.1. Loss of Radioactive Material.

12.1.1. 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 is provided to the Installation RSO.

12.1.2. The Installation RSO will report the incident to the AF Radioisotope Committee (HQ AFMSA/SGPR), by telephone or written report as applicable, within the reporting timelines of AFI 40-201, attachment 11, Reporting Criteria. The Installation RSO will conduct an investigation into the loss of material and prepare an incident report as directed by AFMSA/SGPR and AFI 40-201, Chapter 3.12.

12.1.3. If the loss of material presents a potential hazard to off-base populations, the Installation RSO will coordinate notification to the Kansas Department of Health and Environment through the 22 ARW command post.

12.1.4. If the material is believed to be stolen, the Installation RSO will coordinate notification to the Federal Bureau of Investigation through the 22 SFS and Office of Special Investigation, Detachment.

#### 12.2. Discovery of Radioactive Material.

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

12.2.2. The Installation RSO will determine if the discovered material needs to be reported to HQ AFMSA/SGPR in accordance with AFI 40-201, attachment 11, Reporting Criteria.

12.2.3. 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 AFMSA/SGPR approval to accept the radioactive material where AF ownership is reasonable.

#### 12.3. Radioactive Material Accidents.

12.3.1. 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.

12.3.2. 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 22 ARW Comprehensive Emergency Management Plan 10-2.

12.3.3. The Installation RSO will determine if the incident needs to be reported to HQ AFMSA/SGPR in accordance with AFI 40-201, attachment 11, Reporting Criteria.

**12.4. Suspected Ionizing Radiation Overexposures.**

12.4.1. 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.

12.4.2. 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.

12.4.3. The Installation RSO will determine if the incident needs to be reported to HQ AFMSA/SGPR in accordance with AFI 40-201, attachment 11. For potential medical/dental x-ray exposure to patients, the Installation RSO will also follow AFI 48-148, Chapter 4, and involve the appropriate 22 MDG (SGH, 22 MDG/CC) and HQ AMC/SG offices in the incident reporting.

## Chapter 13

### RADIATION FACILITY PLANS REVIEW

**13.1. 22** CES/CEP 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.

**13.2.** The Installation RSO will provide 22 CES/CEP recommendations on procedures to prevent overexposure and any ALARA considerations.

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

## Chapter 14

### QUALITY CONTROL

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

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

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

14.1.3. 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, Para 3.6.2.

14.1.4. 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.

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

**14.2. The Installation RSO will present the results of the annual review** to the Aerospace Medicine Council and the Environmental, Safety and Occupational Health Council.

RICKY N. RUPP, Colonel, USAF  
Commander

## Attachment 1

### GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

#### ***References***

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

AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*, 24 Jan 07

AFI 40-201, *Managing Radioactive Materials in the U.S. Air Force*, 13 Apr 07

AFMAN 48-125, *Personnel Ionizing Radiation Dosimetry*, 7 Aug 06

AFI 48-148, *Ionizing Radiation Protection*, 21 Sep 11

AFI 91-204, *Safety Investigations and Reports*, 24 Sep 08

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, 1 Jun 96

AFMAN 24-204(I), *Preparing Hazardous Materials for Military Air Shipments*, 15 Apr 07

AFPD 40-2, *Radioactive Materials (Non-Nuclear Weapons)*, 15 Mar 07

DODI 6055.11, *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 Packaging*. T.O. 33B-1-1, *Nondestructive Inspection Methods*

#### ***Prescribed Forms***

There are no prescribed forms.

#### ***Adopted Forms***

SF 600, *Health Record-Chronological Record of Medical Care*

SDRD Listing 1523, *Dosimetry Data*

SDRD Listing 1499-1, *Occupational Radiation Exposure Report (Current)*

SDRD Listing 1499-2, *Occupational Radiation Exposure Report (Summary)*

AF Form 1527, *History of Occupational Exposure to Ionizing Radiation*

NRC Form 241, *Report of Proposed Activities in Non-Agreement States, Areas of Exclusive Federal Jurisdiction, or Offshore Waters*.

*Abbreviations and Acronyms*

**AF**— Air Force

**AFB**— Air Force Base

**AFOSH**— Air Force Occupational Safety and Health

**AMC**— Air Mobility Command

**AMCI**— Air Mobility Command Instruction

**CFR**— Code of Federal Regulations

**DOE**— Department of Energy

**DOT**— Department of Transportation

**IMT**— Information Management Tool

**NRC**— Nuclear Regulatory Commission

**OPR**— Office of Primary Responsibility

**OSHA**— Occupational Health and Safety Administration

**Permit**—USAF Radioisotope Committee Radioactive Material Permit

**RDS**— Records Disposition Schedule

**RIC**— USAF Radioisotope Committee

**RAM**— Radioactive materials

**RPD**— Radiation Producing Device

**RSO**— Radiation Safety Officer

*Terms*

**Abnormal Exposure**—An exposure received in any monitoring period that, if continued at the same rate would exceed the limits specified in 10 Code of Federal Regulations (CFR). Determine an abnormal exposure dose equivalent by dividing the applicable (stochastic or nonstochastic) annual limit by the number of monitoring periods during the year. For stochastic exposures, an abnormal exposure is 417 millirem (mrem) [4.2 milliSievert (mSv)] for any monthly monitoring period and 1250 mrem (12.5 mSv) for any quarterly monitoring period.

**ALARA (As Low As Reasonably Achievable) Program**—A set of management and administrative actions taken to reduce personnel radiation exposures to as low as reasonably achievable. The ALARA concept was developed in response to scientific evidence that suggests that no level of ionizing radiation exposure is totally risk free.

**ALARA Action Level**—Locally established radiation exposure limits for personnel dosimetry results that are less than the Air Force established criteria used to flag exposures that are above normal, higher than expected or could potentially result in an abnormal exposure if trends continue. Informal investigation is conducted by permit RSO to determine the specifics of the exposure, such as change in workload, tasks, or position. Results are reported to the Radiation Safety Committee.

**Area TLD Monitor**—Person assigned by the unit or section responsible for enforcing OI/STDs of the TLD program for that unit or area.

**TLD—Thermoluminescent Dosimeter**—The personnel dosimeter is used to indicate a close approximation of the exposure dose to ionizing radiation to ensure exposures are maintained ALARA. The badge contains a thermoluminescent dosimetry packet. The packet is exchanged monthly or quarterly depending on the area where an individual works.

**Pregnant Worker Action Level**—Personnel dosimetry result which, if continued for the term of pregnancy, would exceed the 500 mrem/9 month's exposure limit for the fetus. This equates to approximately 55 mrem on a monthly TLD.

## Attachment 2

## ALARA INVESTIGATIONAL LEVELS

Description	Level I	Level II
Whole body, head/trunk; active blood forming organs; or gonads	125 mrem/quarter	375 mrem/quarter
Lens of eyes	375 mrem/quarter	1125 mrem/quarter
Extremities; shallow dose	1250 mrem/quarter	3750 mrem/quarter

**A2.1. Exposures less than ALARA Level I:** Except when deemed appropriate by the Installation RSO, no action is required.

**A2.2. Exposures exceeding ALARA Level I, but less than ALARA Level II:** The Installation RSO will review the exposure of each individual whose exposure record exceeds Level I.

**A2.3. Exposures exceeding ALARA Level II:** The Installation RSO will conduct an investigation and determine the causes of the exposure and make recommendations to preclude a recurrence. The RSO will forward a letter stating the dose received and making recommendations for radiation protection to persons who exceed ALARA Level II dose limits.

**Attachment 3****NON-AIR FORCE ORGANIZATIONS/CONTRACTOR REQUIREMENTS**

**A3.1.** Non-Air Force organizations/contractors performing services involving use of their own RAM or ionizing RPD under the auspices of their own USNRC or Agreement State License shall send a request to the Base RSO at least **30 calendar days**, or as soon as notified/contracted if less than 30 days, before bringing/conducting operations involving RAM or RPD on Air Force installations. Per AFI 40-201 requests must be in writing and include:

A3.1.1. A brief description of the proposed activities:

A3.1.2. A copy of a current NRC or Agreement State license with current NRC Form 241, **Report of Proposed Activities in Non-Agreement States, Areas of Exclusive Federal Jurisdiction, or Offshore Waters** specifying specific use locations. The NRC Reciprocity Form (NRC Form 241) must accompany the Agreement State license. The license must either specifically list the installation or grant approval for work at temporary job sites anywhere in the United States where the NRC or Agreement State has jurisdiction.

**NOTE:** Operations on property that is not exclusive federal jurisdiction will need to pay reciprocity. Likewise, State licensees may not work on Air Force or other installations where exclusive federal jurisdiction exists unless pre-coordinated and reciprocity is paid to the NRC.

**EXCEPTION:** Contractors using generally licensed materials (e.g., certain NITON Lead Paint Analyzers) and DoE or DoE prime contractors operating in accordance with 10 CFR Part 835 do not require an NRC license or NRC Form 241. However, Installation RSO must receive written certification from DoE organizations or DoE prime contractors that they are exempt from NRC license requirements.

A3.1.3. Name, local address, and telephone number for the responsible local representative. Recipients of obtained information shall be required to comply with the requirements of the Privacy Act of 1974.

A3.1.4. Name, address, and telephone number of the permit or organization RSO named on their license.

A3.1.5. Copy of the Air Force contract describing work to be done at the installation and the inclusive dates of the work.

A3.1.6. An acknowledgment that the Installation RSO can make periodic checks to ensure that contractor personnel follow radiation safety practices to prevent exposures to Air Force personnel and avoid contamination of government property.

A3.1.7. Acknowledgement that the Installation RSO has authority to suspend contractor operations believed to be unsafe.

**A3.2.** Organizations who regularly perform work on McConnell AFB using RAM containing or RPD can perform a modified version of the above procedures if a Memorandum of Agreement or Understanding is in-place between that organization and the RSO.

**A3.3.** Once approved by Installation RSO, contractor shall:

A3.3.1. Ensure they educate all personnel on correct emergency response procedures.

A3.3.2. Provide proof of certification for transportation as requested.

A3.3.3. Remove RAM daily unless a storage location is identified by contractor appropriately labeled/controlled by contractor and approved by Installation RSO.

A3.3.4. Meet state certification requirements for all RPD on non-federal jurisdiction property.

A3.3.5. Must meet all appropriate DOT, OSHA, NRC and California occupational health requirements.

**Attachment 4****CONTRACTOR REQUIREMENTS UNDER AF RAM LICENSES**

**A4.1.** Contractors organizations performing services involving use of RAM or ionizing radiation producing device (RPD) under the auspices of the an AF permit or using AF owned equipment.

**A4.2.** Contractor shall maintain all occupational health support to employees, specifically use of personnel dosimeters, health risk assessment measurement except those pertaining to public dose or AF/government employee exposure, occupation health physicals, training and personal protective equipment such as lead aprons. Exceptions may be made on a case-by-case basis when coordinated and approved by 22 AMDS/SGPB.

**A4.3.** Contractor shall appoint and obtain Unit RSO training for an individual in their organization to serve as Unit RSO.

**A4.4.** Contractor will maintain permit folder as described in Unit RSO training and in USAF RAM permit. Specifically, contractor will ensure records are maintained in an orderly fashion as required by permit and kept on hand as required by AFI 40-201 Attachment 11, and must include:

A4.4.1. Inventories with explanation for all changes between inventories.

A4.4.2. Shipment paperwork. Ensure no RAM shipments are accepted unless the Installation RSO has confirmed you can accept them, they are not leaking, and that they confirm to Department of Transportation regulations. (EXCEPTION: shipping documents are not required on the base proper.)

A4.4.3. Leak test results or letters referencing such results.

A4.4.4. Confirmation of annual training.

A4.4.5. Letters of Appointment for Unit and Permit RSO signed by the permit holder.

**A4.5.** In addition to local inspections, the Air Force level agencies must inspect permit holders for compliance with statements made in their permit application, conditions listed on the permit, Air Force directives and instructions, and applicable NRC and DOT regulations in 10 CFR and 49 CFR. The NRC may also conduct no-notice inspection and enforces administrative actions, fines, and criminal penalties against the Air Force or individuals as described in 10 CFR Part 2, Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders. Appendix C, General Statement of Policy and Procedure for NRC Enforcement Actions, describes NRC's enforcement policy and the various enforcement options NRC may exercise.

**A4.6.** Therefore, at least one contract monitor will complete radiation safety officer training to ensure competence in review of permit compliance.

**A4.7.** Contract monitor will incorporate permit requirements into contract performance audits.

**A4.8.** Contract monitor will ensure all deficiencies identified by Installation or Permit RSO during annual or spot inspections are corrected within 7 working days.

**A4.9.** Contract monitor will ensure such deficiencies are reflected on contract performance reports.

**A4.10.** Contractor will support on-site spot inspections by Installation or Permit RSO. Contractor will provide all documents requested by Base or Permit RSO within three (3) duty days

**A4.11.** Contract Monitor, contractor Unit RSO, users and shop supervisors will be available for questions from AF Inspector General, AF Radioisotope Committee (RIC) or Nuclear Regulatory Commission (NRC) during any no-notice inspection.