

**BY ORDER OF THE COMMANDER,
374TH AIRLIFT WING**



AIR FORCE INSTRUCTION 40-201

374TH AIRLIFT WING COMMAND

Supplement 1

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Medical Command

**MANAGING RADIOACTIVE MATERIALS IN
THE US AIR FORCE**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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(Maj G. I. Moreno-Fergusson)
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This supplement applies to Yokota Air Base (AB) units and tenant units where radiation sources or radiation generating devices exist. Records created or accumulated as required by the instruction will be maintained and disposed of in accordance with (IAW) AFMAN 37-139, *Records Disposition Schedule*.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

This supplement replaces 374 AWI 40-201, *Ionizing Radiation Protection Program (IRPP)*.

AFI 40-201, 1 September 2000, is supplemented as follows.

1.16. The 374th Airlift Wing Commander (374 AW/CC) has the ultimate responsibility for the 374 AW Radiation Protection Program and delegates the responsibility of the overall operation of the Radiation Protection Program at Yokota AB to the base Radiation Safety Officer (RSO). The 374 AW/CC must appoint, by letter, the base RSO and his/her alternates (not the 374th Medical Group Commander [374 MDG/CC]).

1.17. Unit, detachment, and tenant commanders must designate, in writing, a unit/detachment RSO to support the base RSO. Notify the base RSO in writing when a new unit/detachment RSO is assigned. Ensure the unit/detachment RSO provides all information necessary to evaluate the radiation hazard to the base RSO.

1.17.12. Immediately notify the RSO of any suspected personnel overexposure to radiation.

1.17.13. (Added) The 374 MDG/CC will ensure all operations using radioactive material or radiation producing equipment for medical use comply with this instruction and Chapter 4 of AFI 48-148, *Ionizing Radiation Protection*.

1.17.14. (Added) The Commander of the Army Corps of Engineers and Bioenvironmental Engineering will develop and maintain a log for tracking Government of Japan-funded projects in which radioactive material (such as moisture density gauges) are used. Japanese contractors must meet the radiological regulatory requirements set forward by the applicable Japanese regulatory activity. Copies of the contractors Radioactive Material Permits and certifications must be forwarded to the base RSO (374 AMDS/SGPB) for review and filing.

1.18. A Radiation Safety Council will not be formed at Yokota AB, Japan.

1.21.8. Performs or supervises radiation protection surveys and hazard categorizations on all ionizing and non-ionizing radiation sources to ensure compliance with appropriate directives.

1.21.11. (Added) Provides guidance on radiation hazards and exposure limits. Provides assistance as requested by unit RSOs developing training plans for ionizing and non-ionizing radiation.

1.21.12. (Added) Investigates potential overexposures to wing personnel.

1.21.13. (Added) Coordinates on all requests for radioactive material permits.

1.21.14. (Added) Ensures radiation inspections are conducted and unsafe conditions are terminated.

1.21.15. (Added) Monitors the receipt, shipment, transfers and disposal of all radioactive materials.

1.21.16. (Added) Ensures diagnostic and therapeutic medical x-ray devices are operated and maintained by the guidance of Title 21, Code of Federal Regulations, Parts 1000 and 1020. Performs radiation surveys on all diagnostic and therapeutic medical x-ray devices and equipment operated and maintained at Yokota AB.

1.21.17. (Added) Is responsible for placing personnel on, monitoring results of, and conducting the Thermal Luminescent Dosimeters (TLD) and as low as reasonably achievable (ALARA) program. The RSO will conduct ALARA training for all personnel monitored on the TLD program.

1.21.18. (Added) A 374 AW Radiation Safety Committee will not be established due to the small number of radiation sources on base.

1.22. The Permit RSO ensures directives set forth in AFI 40-201, *Managing Radioactive Materials in the US Air Force*, are followed and that training is documented on each employee's AF Form 55, **Employee Safety and Health Record**.

1.24. **Public Health (PH) (374 AMDS/SGPM):** PH determines occupational physical examination requirements through the Aeromedical Council.

1.25. (Added) **Unit RSO:** Unit RSOs act as the single focal point for the unit on radiation protection issues. It is the unit representative's responsibility to inform the base RSO of changes involving radiation generating devices or equipment and/or radiation safety procedures.

1.25.1. (Added) The Unit RSO must brief unit personnel on the radiation overexposure notification procedures and the importance of coordinating changes in radiation generating devices or equipment and radiation safety procedures.

1.25.2. (Added) Perform an annual inventory of all ionizing and non-ionizing sources operated by the unit, and provide a copy of all pertinent information to the base RSO (374 AMDS/SGPB).

1.25.3. (Added) Ensure all ionizing radiation producing equipment or radioactive material operators are trained and certified by the section supervisor, and maintain a current listing of all certified operators for the unit.

1.25.4. (Added) If technical order (TO) guidance is not available, ensure an operating instruction (OI) is written for each piece of equipment, which has the potential to expose unit personnel to hazardous radiation when operated in a manner consistent with manufacturer's recommendations. The OI should include standard safety procedures and must be reviewed annually.

1.25.5. (Added) Coordinate radiation survey or hazard evaluations with the base RSO.

1.25.6. (Added) Assist in investigations of suspected or actual overexposures.

1.25.7. (Added) Ensure corrective actions are initiated within the unit on all radiation protection program deficiencies identified by the base RSO.

1.25.8. (Added) Ensure training on non-ionizing radiation safety training for personnel exposed to radio frequency (RF) and laser radiation is documented on each employee's AF Form 55.

1.26. (Added) **Section Supervisors:** Section supervisors must refer all pregnant active duty, reservists on active duty, and civilian females who work with ionizing radiation sources/equipment to the 374 MDG and PH, respectively, as soon as pregnancy is suspected.

1.26.1. (Added) Ensure all personnel are identified to PH for determination of occupational physical requirements.

1.26.2. (Added) Report suspected radiation overexposures to the unit RSO.

3.2.1.3. May not buy radio-luminescent exit signs for any reason without prior approval and justification given in writing to 374 AMDS/SGPB and the United States Air Force (USAF) Radioisotope Committee. Signs currently in use must be disposed of IAW HQ AFMOA/CV. For specifics on the management of radio-luminescent exit signs refer to **Attachment 12 (Added)** of this supplement.

3.4. Requests for possession and use of radioactive sources must be IAW TO 00-110N-3, *Requisition, Handling, Storage and Identification for Radioactive Material*, paragraph 8, and must be coordinated through the base RSO (374 AMDS/SGPB).

3.4.4.11. (Added) For contractors operating radiation sources on Yokota AB, the base RSO will issue a letter to the base representative for that contract outlining requirements when using or storing items on base. A base radioactive materials number will be assigned to this package for tracking purposes. This applies to construction projects funded by the Government of Japan (paragraph **1.17.14. (Added)**). These contractors must comply with the regulatory requirements set forth by the applicable Japanese regulatory activity. Copies of their radioactive material permits and formal training certificates must be made available to the base RSO (374 AMDS/SGPB) for review, filing and approval prior to work starting.

3.6. Storage of radioactive materials will be IAW with AFJI 23-504, *Radioactive Commodities in the DoD Supply System*, and TO 00-110N-3. The base RSO must approve all storage areas before use. Follow-up surveys are performed every 90 days on restricted areas and annually on unrestricted areas. Yokota AB does not have any restricted areas. The base RSO maintains the results of the surveys. Report any unusual circumstances to the base RSO.

3.6.4. (Added) Control of Radio-Luminescent Exit Signs:

3.6.4.1. (Added) All radio-luminescent exit signs containing tritium gas on Yokota AB property must be surveyed and inventoried every 6 months.

3.6.4.2. (Added) 374 AMDS/SGPB will notify the Director of Nuclear Material Safety and Safeguards, US Nuclear Regulatory Commission (NRC), Washington DC 20555-0001 within 30 days of transferring the devices. This notification includes the manufacturer, name, model and serial number of the device and the name and address of the receiving person. No report to the NRC will be required for devices returned to the manufacturer. Notification to the base RSO must be made *immediately* for any missing signs.

3.6.5. (Added) All laser systems require an initial survey by the base RSO. An annual site survey is required of all potentially hazardous laser systems.

3.6.6. (Added) X-ray generating equipment requires an annual survey by the base RSO to ensure compliance with applicable procedures.

3.6.7. (Added) RF systems are any emitters with operating frequencies between 10 KHz and 300 GHz. A survey by the base RSO is required before placing any emitter device into operation. An annual site survey is required of all RF systems categorized as potentially hazardous IAW AFOSHSTD 48-9, *Radio Frequency Radiation (RFR) Safety Program*.

3.6.8. (Added) Laser systems are any emitters with operating wavelengths between the Invisible Ultraviolet and Invisible Infrared ranges. A survey by the base RSO is required before placing any emitter device into operation. An annual site survey is required of all Laser systems categorized as potentially hazardous IAW AFOSHSTD 48-139, *Laser Radiation Protection Program*.

3.6.9. (Added) New construction designs for facilities housing radiation sources will be coordinated with the base RSO.

3.8. The 374th Logistics Readiness Squadron (374 LRS) Transportation Management Office (TMO) will coordinate all in-bound and out-bound shipment of radioactive materials with the base RSO (374 AMDS/SGPB) prior to releasing the item. The 374 LRS TMO will prepare shipment, ship and receive radioactive materials IAW Title 49 Code of Federal Regulation (49 CFR), *Transportation*, and other applicable commercial and military transportation directives as stated in TO 00-110N-3. The 374 LRS will receive radioactive materials IAW 49 CFR, AFMAN 24-204(I), *Preparing Hazardous Materials for Military Air Shipments*, and other applicable commercial and military directives. Damaged shipments or shipments received with broken container seals will be handled IAW TO 00-110N-3 and DoD 4500.9R, *Defense Transportation Regulation*.

3.8.4. (Added) For military transport from another location, the 730th Air Mobility Squadron (730 AMS) Air Terminal Operations Center will notify 374 AMDS/SGPB (225-8040) of any aircraft arriving with radioactive material manifested on-board.

3.14.10. At Yokota AB, 374 AMDS/SGPB coordinates and is responsible for accomplishing this task.

3.14.10.1. (Added) Disposal of all radioactive wastes including Electron Tubes, Radio-Luminescent Exit Signs, Spark Gaps, etc., that contain excepted and non-excepted amounts of radioactive materials will be coordinated through the base RSO.

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

Radiation Hazards—Any electromagnetic propagation of energy which would result in significant biological damage. All forms of electromagnetic radiation are included--ionizing and non-ionizing.

Ionizing Radiation—Alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, hi-speed protons and other particles capable of producing ions.

Non-Ionizing Radiation—Electromagnetic radiation emitted by certain equipment that is of sufficient energy and frequency to cause biological damage, but not ionization of material. For the purpose of this supplement, lasers, radars, radios, industrial microwave ovens and certain medical equipment are examples of types of non-ionizing radiation.

Thermal Luminescent Dosimeters (TLD)—Monitoring devices, worn by personnel who must frequent radiation-restricted areas and who may exceed certain predetermined levels of exposure to ionizing radiation.

Radiation Safety Officer (RSO)—Synonymous with Radiation Protection Officer (RPO). An individual who provides consultation and advice on the hazards associated with radiation and effectiveness of measures to control these hazards. There are three categories of RSOs on the base:

Base RSO—An individual designated by the installation commander to manage the base radiation protection program.

Permit RSO—An individual approved by the USAF Radioisotope Committee to manage the radiation protection aspects associated with the use of radioactive materials for which a specific USAF Radioactive Material Permit (RMP) has been issued. This is not typically the base RSO.

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

Decommission—For the purpose of this supplement, decommission means to remove safely from service any radioactive source and reduce the amount of residual radioactivity that permits the release of a facility for unrestricted use and termination of the removal plan for all generally licensed Radio-luminescent Exit Signs from Yokota AB.

Attachment 12 (Added)**MANAGEMENT PLAN FOR CONTROL, DISPOSITION, AND TRANSFER OF
RADIOLUMINESCENT EXIT SIGNS**

A12.1. This plan is pursuant of the requirements set forth by the USAF Radioisotope Committee and the requirements listed in Title 10 CFR, Part 30.36, *Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas*.

A12.1.1. This decommissioning plan includes the condition of the facilities and the signs, where these are located, planned decommissioning activities, and descriptions to minimize the radiation hazards to workers and the environment during the decommissioning process.

A12.1.2. This plan also includes:

A12.1.2.1. The locally required radiation awareness training for facility managers and abatement workers.

A12.1.2.2. Justification for completion of the decommissioning program later than 24 months after plan approval.

A12.2. Disposition of Exit Signs:

A12.2.1. All of the radio-luminescent exit signs will be disposed of IAW 10 CFR, Part 30.41, *Transfer of Byproduct Mater*, and AFI 40-201, paragraph 3.14., through the base RSO and 374 AMDS/SGPB.

A12.2.1.1. Personnel removing the signs will develop a comprehensive schedule plan. A copy of this plan will be provided to 374 AMDS/SGPB. This plan will be forward to HQ AFMOA/SGPR for coordination and approval and to the AF Radioactive and Mixed Waste Management Office (AFIERA/SDRH), Brooks AFB, Texas, for coordination and final disposition guidance.

A12.2.1.2. 374 AMDS/SGPB will be contacted at least 48 hours prior to removal of the signs so that coordination with the AFIERA/SDRH can be accomplished. Due to disposal costs, the first choice for disposal will be through the Environmental Management Office, Radiation Section, Wright-Patterson AFB, Ohio. The second choice for disposal will be through the manufacturer of the sign with a current disposal cost of \$50 per sign.

A12.2.1.3. A chain-of-custody form will be developed so tracking of the signs can be accomplished.

A12.2.1.4. 374 AMDS/SGPB will ensure that these devices may only be transferred to persons specifically licensed by USNRC or Agreement State to receive such devices.

A12.2.1.5. 374 AMDS/SGPB will notify the Director of Nuclear Material Safety and Safeguards, USNRC, Washington DC 20555-0001, within 30 days of transferring the devices. This notification includes the manufacturer, name, model and serial number of the device and the name and address of the receiving person. No report to the NRC will be required for devices returned to the manufacturer.

A12.2.2. All devices awaiting disposal will be stored under lock and key in an area properly labeled IAW AFI 40-201, paragraph 3.9. A complete inventory of all items in storage will be maintained by the RSO. This area will be posted IAW 10 CFR.

A12.3. Accountability of the Signs:

A12.3.1. The 374th Civil Engineer Squadron (374 CES) and 374 AMDS will maintain the master inventory of all exit signs. This inventory will list the sign's manufacturer, serial number and disposal date.

A12.3.2. These signs will be inventoried on a semi-annual basis by 374 AMDS/SGPB. Any discrepancies in the inventory will be promptly notified to the base RSO.

A12.4. Awareness training will be conducted by the base RSO and will include:

A12.4.1. Radiological hazards associated with the signs.

A12.4.2. Specific requirements listed under this supplement.

A12.4.3. Reporting and notification procedures.

A12.4.4. Duty to report all incidents/accidents associated with the signs.

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