



UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

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SUBJECT: Response to Spills, Incidents, or Accidents Involving Radioactive Material

July 6 2022

Instruction 5101

(EHS)

ABSTRACT

This Instruction provides information on policies in effect at the Uniformed Services University of the Health Sciences (USU) concerning the handling of spills, incidents, or accidents involving radioactive materials. The responsibilities of USU Environmental Health and Occupational Safety Department (EHS), Radiation Safety Officer (RSO) and other individuals concerned are outlined. Other governing directives are cited within to indicate sources for more detailed guidance on this subject matter area. Armed Forces Radiobiology Research Institute (AFRRI) specific sources and facilities will follow all safety requirements as outlined in AFRRI's Health Physics Department's Health Physics Procedure 8-2.D, "Radiological Incidents".

A. Reissuance and Purpose. This Instruction reissues USU Instruction 5101 (*Reference (a)*), provides guidance and standard operating procedures for USU to follow when responding to spills, incidents, or accidents within USU involving radioactive materials, and defines USU capabilities to respond to outside incidents and accidents when requested. An outside request for support is generally understood as most likely coming from another Naval Support Activity Bethesda (NSAB) tenant command, while also including possible requests from the National Institutes of Health (NIH) or local law enforcement agencies, in the event of a major accident.

B. References. See *Enclosure 1*.

C. Applicability. This Instruction applies to all personnel who work within the USU campus and outlying buildings to include Federal civilian employees, military members, USU volunteers, and contract employees.

D. Background.

1. This Instruction, 10 CFR, Parts 19(*Reference (b)*), 20(*Reference (c)*), 30(*Reference (d)*), and 35(*Reference (e)*), United States Nuclear Regulatory Commission (USNRC) License No. 19-23344-01 (*Reference (f)*), and USU Instruction 6402-M (*Reference (g)*), mandate that radioactive material must be used in a safe and secure manner and be controlled at all times. Loss of control of radioactive material requires prompt actions in order to regain control and to minimize any adverse effects on personnel, the general public, and property.

2. The University uses only small quantities of radioactive materials incidental to its research functions. The cumulative quantity is on the order of one tenth or less of that routinely used in hospitals. Individual source activities are small and the types of radioisotopes are usually short lived and of a low hazard potential. Loss of control of these types and potential quantities of radioactive material represents essentially no hazard to the staff of USU. Regardless of the small hazard potential involved with the use of radioactive material, it is prudent to establish reasonable response criteria to address any loss of control of the material.

E. Definitions. *See Enclosure 2.*

F. Policy. It is USU policy to maintain control of radioactive materials at all times, regardless of the quantity or type of material. In the event of a spill, incident, or accident involving radioactive material, immediate action will be initiated by persons in the affected laboratory to correct the situation and minimize any possible effects. Untrained persons should not attempt to clean up radioactive spills. Additionally, EHS shall be expeditiously notified so they can provide additional guidance and corrective measures, as needed, to ensure compliance with applicable USU, Department of Defense (DoD), and Federal requirements. When requested by outside agencies, USU will respond to accidents involving radioactive material within its current resources and capabilities at the discretion of the Director, EHS. The Director, EHS will promptly inform USU senior management of any actions, proposed or taken, through the chain of command.

G. Responsibilities.

1. Laboratories using Radioactive Materials shall:

a. Maintain necessary materials to respond to and contain any credible spill, and shall maintain adequate instruction and training for personnel to respond to incidents or accidents. Immediately upon discovering a spill, the laboratory personnel shall follow the guidance provided by this Instruction and, if necessary, contain the spill using available materials. General guidance in response to a spill is provided in Section XI of USU Instruction 6402 M (*Reference (g)*).

1) The same personal protective equipment/clothing required to work with the material in the laboratory is required for responding to the spill.

2) Appropriate material for containing the spill is any supply capable of limiting the spread and/or absorbing the spill, such as paper towels for liquid spills.

3) Remember the acronym SWIMS: **STOP** the spill; **WARN** nearby personnel; **ISOLATE** the spill; **MINIMIZE** exposure; **SECURE** the area.

b. Immediately notify the Radiation Safety Division (RSD) within EHS of any spill, incident, or accident. The RSD will provide necessary additional instructions, which are to be followed. EHS shall make any necessary additional notifications, as required.

c. Ensure that all recoveries are accomplished under the guidance of the RSD, EHS.

2. The RSD, EHS, shall:

a. Upon being notified of a spill, incident, or accident, immediately gather pertinent information concerning the situation (e.g., isotope involved, form, approximate activity, etc.). Radiation Safety Personnel (RSP) shall notify the RSO and respond to the spill site to oversee the cleanup.

b. After spill clean-up is completed, or an incident or accident is brought under control, make necessary surveys and measurements to verify appropriate and effective mitigation of the spill.

c. Monitor all clean-up materials and waste for contamination. RSP shall ensure that used materials are placed in the appropriate radioactive waste containers.

d. Monitor all personnel involved for contamination and/or radiation exposure as the situation requires, and any necessary follow up action that needs to be accomplished (e.g., personnel decontamination, bioassay, dose estimates, etc.).

3. The RSO, RSD, EHS shall:

a. Upon notification, take charge of the response efforts to contain, control, and recover from any spill, incident, or accident involving radioactive materials.

b. Dispatch RSP as needed, and request the help of other USU personnel based on need and the severity of the situation. In radioactive accident/incident situations, all personnel involved in the response should follow the direction and orders of the RSO. In the event of a multiple hazard situation (e.g., fire and radioactive contamination), the most urgent or threatening hazard will be addressed first. Coordinated control will be necessary in multiple threat situations to minimize damage and personnel hazard, and to ensure effective clean-up efforts.

c. Direct, either personally or by delegation to another on-site person, the clean-up and final evaluation of the area involved to document appropriate and effective mitigation of the spill and the release of the area for use. In the event that the area cannot be returned to pre-spill conditions, the RSO shall develop and institute a plan to either return the area to an approved working condition, or to provide necessary future controls of the area to prevent unauthorized use.

4. The Industrial Hygiene and Environmental Division, EHS shall, under the direction of the Division Chief, provide necessary additional support, as directed by the Director, EHS.

5. The Director, EHS shall:

- a. Be kept informed of the situation at all times and will keep the chain of command briefed accordingly.
- b. Based on the requests of the RSO, enlist the support of various USU departments and divisions to assist in bringing the situation under control.
- c. Based on the recommendations of the RSO, make necessary notifications to local, DoD, state, and/or Federal agencies as required or deemed prudent.
- d. Provide information to the Vice President for External Affairs (VPE) for further dissemination.

6. USU Administrative and Academic Departments/Divisions shall provide assistance in containing, controlling, and recovering from a radiation spill, incident, or accident as requested by the Director, EHS. Coordination and cooperation are essential to minimize the loss of property and potential harm to personnel, the public, and the environment.

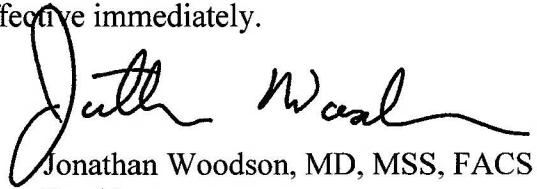
H. Reporting Requirement/Public Information Releases.

1. All radiation incidents, accidents, and spills, no matter how small, will be reported to EHS as soon as possible.
2. The RSO will report an incident or accident to the United States Nuclear Regulatory Commission, DoD, or other local and Federal agencies, as appropriate, in the event that results in the following: that cause the loss of property, the loss of use of spaces for longer than 24 hours, exposure to any member of the general public or staff member greater than the allowed limits, a lost source, or the likely generation of significant interest by the public and media.
3. Public information releases will be in accordance with USU policy and the Federal Radiological Emergency Response Plan (*Reference (h)*), as applicable. All information releases in reference to radiological situations on the USU campus will be coordinated with the RSO. Public information releases and media inquiries will be conducted by the VPE.

I. Support to Outside Agencies.

1. In the event that a request for support is received, USU will respond with personnel and equipment that can be spared, as directed by EHS and approved by USU senior management, or to the extent directed by the DoD.

J. Effective Date. This Instruction is effective immediately.



Jonathan Woodson, MD, MSS, FACS
President

Enclosures:

1. References
2. Definitions

REFERENCES

- (a) USU Instruction 5101, "Response to Spills, Incidents, or Accidents Involving Radioactive Material," dated September 15, 2015 (hereby canceled).
- (b) 10 Code of Federal Regulations, Part 19, "Notices, Instructions, and Reports to Workers: Inspections and Investigations."
- (c) 10 Code of Federal Regulations, Part 20, "Standards for Protection against Radiation."
- (d) 10 Code of Federal Regulations, Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material."
- (e) 10 Code of Federal Regulations, Part 35, "Medical Use of Byproduct Material."
- (f) United States Nuclear Regulatory Commission License No. 19-23344-01, dated August 19, 2021.
- (g) USU 6402-M, "Radiation Safety Manual," dated March 1, 2021.
- (h) Federal Radiological Emergency Response Plan (FRERP) - Operational Plan May 1, 1996.

DEFINITIONS

1. Accident. A situation where the control of radioactive material or a radiation emitting source is lost and property is adversely affected, personnel are or could be exposed to significant radiation exposure or contamination with radioactive material, or a radiation field is generated in excess of allowable limits.
2. Incident. A situation where due to the loss of control of radioactive material or a radiation emitting source, there is a significant increase in risk to loss of property or increased possibility of exposure to personnel from contamination or exposure.
3. Spill. A situation where control of radioactive material is lost, contaminating property and/or personnel. This situation has the potential to spread if not quickly identified and contained. A spill may be classified as an incident or an accident, depending on its effect on the environment or personnel. Spills with essentially no adverse effect are classified as incidents while those that cause significant contamination or exposure to personnel are classified as accident.