

Standard Operating Procedures – Radiation Safety Office

Emergency Spill Procedures

PROCEDURE FOR CLEANING A MINOR SPILL

1. Stop working immediately. Notify all persons in the area that a spill has occurred.
2. Don two pairs of protective gloves. If the radioactive material has spilled on the floor, don protective shoe covers as well.
3. Cover the spill with absorbent material to prevent spread or further contamination.
4. Clean up with absorbent papers. Avoid personal contamination and spreading the spill. Work from the perimeter of the spill inward, disposing of saturated paper as it is generated in a properly labeled waste bag.
5. Collect all materials used for clean-up, including gloves and shoe covers, in plastic bags and transfer them to radioactive waste container.
6. Survey the area. A Geiger counter survey meter with a pancake probe is suitable for most isotopes. Tritium (H-3) must be surveyed by conducting wipe tests of the area.
7. Check your hands, clothing, and shoes for possible contamination.
8. Report the incident to REHS.
9. REHS will follow up by confirming that decontamination is complete.

PROCEDURE FOR CLEANING A MAJOR SPILL

1. Stop working immediately and ask all persons not involved to vacate the room. Contact REHS immediately.
2. Don two pairs of protective gloves. Cover the spill with absorbent material to prevent spread of contamination, being careful to avoid personal contamination, prolonged exposure, or spreading of the spill.
3. Shield the spill source if possible. Sheets of Plexiglas are suitable for beta sources and lead is suitable for gamma sources. Alpha-producing radionuclides do not need shielding.
4. Close the room or prevent entry and wait for REHS to arrive.
5. Restrict the movement of all personnel who may be contaminated. Decontaminate the person(s) by following the skin and clothing decontamination procedures.
6. Follow any directions from REHS. REHS will supervise the cleanup and perform a survey.

SKIN DECONTAMINATION PROCEDURE

1. Remove any contaminated PPE (i.e. gloves, lab coat, protective eyewear) and clothing. Remove them in a manner to avoid transferring additional radioactivity to skin. Set aside for decontamination later or dispose of in dry radioactive waste container.
2. Flush skin thoroughly with lukewarm water. Wash gently with a mild soap. Take care not to scrub very hard, as this may abrade the skin and increase the penetration of contamination.
3. If skin contamination remains, perspiration may be induced by covering the contaminated skin with plastic wrap, or donning protective gloves in the case of remaining contamination on the hands. After sweating occurs, immediately wash the site again with lukewarm water and mild soap.
4. If hair is contaminated, wash with soap and water. Avoid spreading the contamination further.

5. If eyes were contaminated, flush generously with isotonic solution, if available. Otherwise, use water. If contamination still remains, medical attention is required.
6. If nose or mouth becomes contaminated, flush thoroughly with water, being careful not to inhale or ingest the water.
7. If a small wound becomes contaminated, such as a small, shallow cut, stimulate bleeding and flush with sterile water. Follow standard first aid procedures. If a large wound is contaminated, control bleeding and seek medical attention.
8. REHS will advise further upon arrival, and arrange for medical response if necessary.

DECONTAMINATION OF CLOTHING

1. Carefully remove contaminated clothing, avoiding spread of contamination onto the skin, hair, etc. Place contaminated clothing into plastic bag and mark with a radiation sticker. REHS will handle decontamination, decay, or disposal of contaminated clothing. *Note: loss of personal clothing can be avoided by wearing appropriate PPE. Full-length lab coats (not the short lab coats worn by medical students) should be worn at all times when handling radioactive materials.*
2. If shoes become contaminated, wear protective shoe coverings to prevent the spread of contamination. Contamination on shoe soles is typically easy to remove. Wash the sole with soap and water over a sink, and use a Geiger counter or wipe tests to check that decontamination is complete.

RELEASE OF AIRBORNE OR VOLATILE RADIOACTIVITY

1. Alert everyone in the area and advise them to evacuate the room. Instruct them, however, not to leave the area. Contact REHS.
2. Stop the release of radioactivity from its source, but only if possible to do so safely. Do not inhale while performing this task.
3. Evacuate the room and close the door. Prevent entry until REHS arrives, and prevent anyone present in the room at the time of release from leaving the area.
4. REHS will check all personnel that were potentially exposed to the airborne radioactivity for contamination before they are allowed to leave the area. Decontamination and medical assistance will be provided if necessary.
5. REHS will supervise the decontamination and reentry of the affected room.

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