

# Emergency Procedures

## 1) Contents of Spill Kit

- Disposable gloves;
- Housekeeping gloves;
- Disposable lab coats;
- Disposable head coverings;
- Disposable shoe covers;
- Roll of absorbent paper with plastic backing;
- Masking tape;
- Plastic trash bags with twist ties;
- “Radioactive Material” labeling tape;
- Marking pen;
- Pre-strung “Radioactive Material” labeling tags;
- Box of wipes;
- Instructions for “Emergency Procedures”;
- Pencil;
- Appropriate survey instruments including batteries (for survey meters).

## **2) Minor Spills of Liquids and Solids**

- Notify persons in the area that a spill has occurred.
  - Prevent the spread of contamination by covering the spill with absorbent paper. (Paper should be dampened)
  - Clean up the spill, wearing disposable gloves and using absorbent paper.
  - Carefully fold the absorbent paper with the clean side out and place in a plastic bag. Put contaminated gloves and any other contaminated disposable material in the bag.
  - Survey the area by taking wipes. Check the area around the spill for contamination. Also check hands, clothing, and shoes for contamination.
  - Report the incident to the RSO promptly.
  - Allow no one to return to work in the area unless approved by the RSO.
  - Cooperate with RSO (e.g., investigation of root cause, provision of requested bioassay samples).
  - Follow the instructions of the RSO (e.g., decontamination techniques, surveys, provision of bioassay samples, requested documentation).
- Reminders to RSO
- Follow up on the decontamination activities and document the results.
  - As appropriate, determine cause and corrective actions needed; consider bioassays if licensed material may have been ingested, inhaled, and/or absorbed through the skin.
  - If necessary, notify NRC.

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### **3) Incidents Involving Radioactive Gases (Kr85)**

- Notify all personnel to vacate the room immediately.
  - Shut down ventilation system, if appropriate, to prevent the spread of contamination throughout the system and other parts of the facility.
  - Vacate the room. Seal the area, if possible.
  - Notify the RSO immediately.
  - Ensure that all access doors to the area are closed and posted with radiation warning signs, or post guards at all access doors to prevent accidental opening of the doors or entry to the area.
  - Promptly report suspected inhalation and ingestion of licensed material to the RSO.
  - Decontaminate the area only when advised and/or supervised by the RSO.
  - Allow no one to return to work in the area until it is confirmed by survey or other appropriate means that the Kr-85 has dissipated and radiation fields are at background levels.
  - Cooperate with RSO (e.g., investigation of root cause, provision of requested bioassay samples).
  - Follow the instructions of the RSO (e.g., decontamination techniques, surveys, provision and collection of bioassay samples, requested documentation).
- Reminders to RSO
- Supervise decontamination activities.
  - Perform air sample surveys in the area before permitting resumption of work with licensed materials.
  - Provide written directions to potentially contaminated individuals about providing and collecting urine, breath, blood, or fecal samples, etc.
  - Consider need for medical exam and/or whole body count before permitting involved individuals to return to work with licensed material.
  - Determine cause and corrective actions needed; consider need for bioassays if licensed material may have been ingested, inhaled, and/or absorbed through the skin. Document incident.
  - If necessary, notify NRC.

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#### 4) Minor Fires

- Immediately attempt to put out the fire by approved methods (i.e., fire extinguisher) if other fire hazards or radiation hazards are not present.
  - Notify all persons present to vacate the area and have one individual immediately call the RSO and fire department (as instructed by RSO).
  - Once the fire is out, isolate the area to prevent the spread of possible contamination.
  - Survey all persons involved in combating the fire for possible contamination.
  - Decontaminate personnel by removing contaminated clothing and flushing contaminated skin with lukewarm water, then washing with a mild soap.
  - In consultation with the RSO, determine a plan of decontamination and the types of protective devices and survey equipment that will be necessary to decontaminate the area.
  - Allow no one to return to work in the area unless approved by the RSO.
  - Cooperate with RSO (e.g., investigation of root cause, provision of requested bioassay samples).
  - Follow the instructions of the RSO (e.g., decontamination techniques, surveys, provision of bioassay samples, requested documentation).
- Reminders to RSO
    - Supervise decontamination activities.
    - If decontamination of personnel was not fully successful, consider inducing perspiration by covering the area with plastic. Then wash the affected area again to remove any contamination that was released by the perspiration.
    - Consult with fire safety officials to assure that there are no other possibilities of another fire starting.
    - Determine cause and needed corrective actions; consider need for bioassays if licensed material may have been ingested, inhaled, and/or absorbed through the skin. Document incident.
    - If necessary, notify NRC.

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## 5) Fires, Explosions, or Major Emergencies

- Notify all persons in the area to leave immediately.
  - Notify the fire department.
  - Notify the RSO and other facility safety personnel.
  - Upon arrival of firefighters, inform them where radioactive materials are stored or where radioisotopes were being used; inform them of the present location of the licensed material and the best possible entrance route to the radiation area, as well as any precautions to avoid exposure or risk of creating radioactive contamination by use of high pressure water, etc.
  - Cooperate with RSO (e.g., investigation of root cause, provision of requested bioassay samples).
  - Allow no one to return to work in the area unless approved by the RSO.
  - Follow the instructions of the RSO (e.g., decontamination techniques, surveys, provision of bioassay samples, requested documentation).
- Reminders to RSO
- Coordinate activities with facility's industrial hygienist or environmental health and safety office, and with local fire department.
  - Consult with the firefighting personnel and set up a controlled area where the firefighters can be surveyed for contamination of their protective clothing and equipment after the fire is extinguished.
  - Once the fire is extinguished, do not allow the firefighters to enter the radiation area until a thorough evaluation and survey are performed to determine the extent of the damage to the licensed material use and storage areas.
  - Perform thorough contamination surveys of the firefighters and their equipment before they leave the controlled area and decontaminate, if necessary.
  - Supervise decontamination activities.
  - Consider bioassays if licensed material may have been ingested, inhaled, and/or absorbed through the skin. Document incident.
  - Notify NRC.

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