Radiation Spill Response Procedure

1.0 PURPOSE:
Several liquid and dry powder radioisotope types are used throughout the LSU Health Sciences Center. These radiation spill procedures are a general guidance for a rapid, appropriate, and safe response.

2.0 SCOPE:
These procedures address the proper response to incidents involving minor or major spills, leaks, or accidental discharges of liquid or dry powder radioisotopes.

3.0 RESPONSIBILITIES:

3.1 Environmental Health & Safety (EH&S) shall:
- Provide assistance, additional clean-up materials, and personal protective equipment (PPE) as needed to personnel to safely clean up minor spills in their work areas.
- Respond to and assess all major spills and perform decontamination tasks.

3.2 Principal Investigators/Supervisors shall:
- Ensure employees understand these radiation spill procedures.
- Ensure that appropriate and adequate PPE supplies and cleaning materials are readily available.

3.3 Employees shall:
- Be trained on the proper use and handling of radioisotope liquids and dry powders.
- Wear PPE while working with all radioisotope liquids and dry powders.
- Promptly report all major radioisotope spills to University Police at 568-8999, who will then notify EH&S.
4.0 SPILL PROCEDURES

4.1 Minor Spill Classification and Response
Incidents which involve the release or spillage of less than 100 microcuries (uCi) of a radionuclide in a nonvolatile form can generally be regarded as a minor spill.

Actions to take by lab personnel:
- Alert personnel in the immediate area of the spill.
- Wear protective equipment, including safety goggles, disposable gloves, shoe covers, and long-sleeve lab coat.
- Place absorbent paper towels over liquid spill. Place towels dampened with water or decontaminant cleaner over spills of solid materials.
- Using forceps or gloved hand, placed towels in plastic bag. Dispose in a radiation waste container.
- Monitor area, hands, and shoes for contamination with an appropriate survey meter. Repeat cleanup until contamination is no longer detected.
- If assistance needed, call the Radiation Safety Officer at 314-5989.
- Fill out Radiation Contamination Survey form, Appendix 1. Draw lab schematic areas and label numerically. Record initial wipe test results and then final wipe test results after decontamination. Make sure all survey reading are less than 200 DPM / 100 square centimeters.
- File this record in your laboratory and forward a copy to the Environmental Health and Safety Department.

4.2 Major Spill Classification and Response
Incidents that involve the release or spillage of more than 100 microcuries (uCi) of a radionuclide in a nonvolatile form are major spills.

Actions to take by lab personnel:
- Attend to injured or contaminated persons and remove them from exposure.
- Direct personnel in the laboratory to evacuate.
- Have potentially contaminated personnel stay in one area until they have been monitored and are shown to be free of contamination.
- Call the Campus police at 568-8999, who will notify EH&S.
- Close the doors and prevent entrance into affected area.
- Document names of potentially contaminated personnel and have them stay in one area, away from the spill, until they have been monitored and shown free of contamination. Remove contaminated clothing and wash contaminated skin with warm, soapy water, being careful to not damage the skin.
Upon arrival at the scene, EH&S shall:
- Assist with perform decontamination of any personnel exposed to radioactive contaminate.
- Next, perform decontamination of lab areas and equipment.
- Fill out Radiation Contamination Survey form, Appendix 1. Draw lab schematic areas and label numerically. Record initial wipe test results and then final wipe test results after decontamination. Make sure all survey reading are less than 200 DPM / 100 square centimeters.
- Provide a written report within three working days to the LSU Radiation Safety Systems Officer detailing the of the incident and decontamination actions taken.

5.0 TRAINING

5.1 Environmental Health and Safety personnel shall:
Participate in periodic routine spill response drills.

5.2 Principal Investigators and personnel working with radioisotopes shall:
Be trained on laboratory-specific radiation spill clean-up training at initial mandatory Radiation Safety Course required of all personnel who handle radioisotopes.

6.0 RECORD KEEPING

6.1 Radiation Safety Officer shall:
Maintain all spill documentation indefinitely.

6.2 Employees
Principle Investigators/Laboratory Employees will document all minor radiation spill incidents and provide copy to Radiation Safety Officer.

7.0 APPENDIX

Appendix 1. Radiation Decontamination Survey Form
Appendix 1

Radioactive Material Laboratory Survey and Meter Scan Form

PI: ____________________  Department: ______________ Building & Lab #: ______________

Gamma Counter - Manufacturer/Model/Serial #: ________________________________

LSC – Manufacturer/Model/Serial #: _________________________________________
Note: LSC must be used to protect H₂ & C₁₄.

Survey Meter – Manufacturer/Model/Serial #: ________________________________

Background:  mR/Hr or cpm  Battery Check: ______  Calibration Date: __________

Counter Information Type (Check one)  [ ] gamma counter or [ ] LSC:

Isotopes used in Lab: (Check all that apply)
[ ] C-14  [ ] Ch-51  [ ] H-3  [ ] P-32  [ ] I-125  [ ] S-35  [ ]

Rewipe of # _________  Rewipe of # _________

(* Results should read less than twice background in cpm.
Inform the Radiation Safety Officer if it exceeds this amount.
(Contaminated areas must be decontaminated immediately and documented)

Performed By: ______________________________ Date: __________