

UNIVERSITY OF CINCINNATI
RADIATION SAFETY COMMITTEE
POLICY STATEMENT 98-2

Policy Concern: This policy concerns action to be taken following a spill of radioactive material. The primary focus of the policy is the how spills and contamination incidents of concern are to be handled by the Radiation Safety Committee (RSC).

Policy Implementation: The Radiation Safety Officer (RSO) is directed to implement this policy upon approval by the RSC. All necessary procedure changes and instructions to implement this policy must be approved by the RSO.

Discussion: A spill includes any contamination detected outside a clearly defined work area within an approved radioactive material location of use. A spill may be observed (such as a splash) or may be detected during a survey.

The most common usage of radioactive material under the University of Cincinnati's medical broad scope license involves the manipulation of unsealed sources. During the manipulation a spill of the radioactive material may occur. A spill is radioactive material outside the primary area of use. A spill may be detected at the time of occurrence (e.g., the worker drops a container on the floor or notices a drop of radioactive material outside the work area), during an after-use survey, during a routine survey performed by the laboratory, or by the RSO. The majority of spills are minor, i.e., do not contaminate a large area, are easily contained and are quickly cleaned-up. However, a few spills result in widespread contamination, are more difficult to contain and/or result in extensive decontamination efforts.

Under the RCSP individuals who use radioactive material are required to immediately report spills to the RSO. The RSO performs follow-up and/or confirmation of decontamination through surveys and, if necessary, supervises and/or assists decontamination efforts. Under the RCSP individuals who use unsealed sources of radioactive material are required to perform routine surveys. The surveys include non-documented surveys performed throughout a procedure and after-use surveys to ensure the radioactive material is contained, along with documented after-use, weekly or monthly surveys. If surveys are performed as required widespread contamination should not occur.

The RCSP allows the RSO limited authority regarding spills. If the spill is immediately hazardous to health, the RSO has the authority to shut down the laboratory. If the spill is not immediately hazardous to health, the RSO can only oversee and assist decontamination efforts and perform necessary surveys. The RSO concerned about individuals not contacting the RSO as required by the RCSP and about significant contamination events requested the RSC consider formulating a policy with respect to the concerns. The request was made as a memorandum to the RSC, dated January 26, 1998, and was presented at the RSC meeting on February 3, 1998. In the memorandum, the RSO provided three suggestions to the RSC. Two suggestions involved authorizing the RSO to issue points that would bring incidents involving failure to report a spill and/or widespread contamination to the attention of the RSC. The third option suggested having all incidents involving spills that may be of concern brought to the direct attention of the RSC.

The RSC formed a subcommittee to discuss the suggestions and the issue. The subcommittee presented their recommendations to the RSC on May 19, 1998. After some discussion the RSC agreed to a policy that expanded on procedures in place at that time. The agreed on policy was the initial RSC Policy 98-2.

The initial version of RSC Policy 98-2 has been effective; however, confusion regarding applicable incidents occurred from time-to-time. In 2005, the RSO recommended modification of the policy to better clarify applicable incidents and to update the action taken by a RSC subcommittee under the policy.

Definitions:

1. A spill is radioactive material contamination detected outside a clearly defined radioactive material work area within an approved radioactive material location of use. A spill may be observed (such as a splash) or may be detected during a survey.
2. Spills of concern include:
 - a. Contamination incidents requiring notification of the RSO, as listed in section 12.2 of the Radiation Protection Procedures Manual (Authorized User Manual) and the notification is not timely;
 - b. Laboratory staff detected floor contamination not immediately reported to the RSO;
 - c. Any contamination detected outside an approved radioactive material location of use;
 - d. Wide-spread contamination within an approved radioactive material location of use;
 - e. Significant contamination within an approved radioactive material location of use detected by the RSO during a routine RSO surveys. (Significant contamination includes more than a few isolated areas of low-level contamination and contamination detected on a surface other than a labeled piece of equipment greater than allowed for a restricted area.)

Policy Statement:

1. Spill action includes education, response and follow-up.
2. Education shall include:
 - a. The RSO including in the initial training classes information regarding:
 - i. survey requirements,
 - ii. procedures to be taken at the time of a spill, including notification of the RSO,
 - iii. spill follow-up and assistance provided by the RSO,
 - iv. consequences of failure to report a spill or seek assistance from the RSO.
 - b. The RSO and/or the RSC shall periodically include in the Radiation Control and Safety Program newsletter articles about:
 - i. survey requirements,
 - ii. spills response, and/or
 - iii. consequences of failure to report a spill or seek assistance from the RSO.
3. Response shall include:

- a. The authorized user and/or their staff shall respond using the following minimum procedures:
 - i. stop and contain the spill
 - ii. warn others about the spill (including notifying personnel in the area, Radiation Safety and the authorized user)
 - iii. perform necessary decontamination
 - iv. survey the area to ensure decontamination and containment was successful
 - v. complete an incident report (RS form 7)

- b. RSO shall:
 - i. provide 24-hour response,
 - ii. respond to any reported spill as soon as possible (With emergency response, including spills, being given priority over all other duties of the RSO),
 - iii. determine the extent of the spill and implementing area controls, as necessary,
 - iv. supervise and assist with decontamination, as necessary,
 - v. perform follow-up and final surveys, as necessary
 - vi. complete an RSO incident report.

4. Follow-up shall include:
 - a. If a reported spill of concern comes to the attention of the RSO -
 - i. the RSO shall inform the RSC Chair of the incident
 - ii. the RSC Chair shall designate an incident investigation subcommittee that shall include:
 - the RSC Chair
 - two voting members of the RSC
 - the applicable administrative representative to the RSC
 - the RSO
 - iii. the subcommittee shall meet to review the incident within 30 days of the incident
 - iv. the subcommittee shall invite the authorized user to the meeting
 - v. the subcommittee shall review the RSO's investigation documentation, RSO recommendations, and AU suggestions. The subcommittee shall take any action as deemed necessary. Guidance for subcommittee action follows.
 - First incident*: Subcommittee action shall focus on enhancing training and may include enhancement of contamination control and/or detection procedures. Training enhancement will require training performed by the AU and/or RSO. Training enhancement shall focus on deficiencies that resulted in the incident and/or possible root causes of the incident. Training may include reviewing incident response procedures, or requiring the RSO present training on contamination control and/or contamination detection
 - Second incident*: Subcommittee action shall focus on enhancing training and response action, and may include enhancement of contamination control and/or detection procedures. Training enhancement will augment that required for the first incident. Response enhancement may include AU development of standard operating procedures and/or an improvement program that focuses on minimizing the likelihood of similar incidents in the future.

- Third (or greater) incident* : Subcommittee action shall focus on training, and perfecting laboratory incident response procedures, laboratory contamination control procedures and laboratory contamination detection procedures. Subcommittee required action shall occur during a suspension period of at least 30 days. During the suspension period the AU shall be required to develop and implement an improvement program. During the suspension period, the AU shall also be required to obtain assistance from the RSO to perfect worker knowledge of and skills in contamination control, contamination detection and/or spill response. For third incidents the suspension period shall be 30 days. For greater than third incidents the suspension period shall be lengthened and shall require subcommittee review of implemented corrective action prior to lifting the suspension.

(*Note: in determining if the incident is a 1st, 2nd, or 3rd incident a period of time of 2 years prior to the date of the current incident shall be used and the incidents should be considered similar or have similar root causes by the subcommittee.)

- b. The RSO shall keep the RSC informed about spills by:
 - i. routinely providing information about incidents in the RSO's report
 - ii. providing information as requested by the RSC.

Policy Approval:

Initial Approval July 21, 1998

Revision 1 approved May 17, 2006