How to Monitor Your Lab for Radioactive Contamination

SafetyNet #: 56

As a condition of your Radiation Use Authorization (RUA), you must maintain an ongoing radiation monitoring program for all radionuclide work areas, storage locations, and equipment that may have come into contact with radioactive materials.

Frequency

- Perform monitoring immediately after using radioactive materials. If work has been performed with anything except H-3 (tritium), a GM survey meter with a pancake probe can be used to detect low levels of beta or gamma emitters.

- Wipe test results must be recorded in a logbook a minimum of once every two weeks if routine work has occurred. If work with radioactive materials is infrequent, wipe tests should be performed after each use.

- More frequent monitoring may be required depending on the experimental protocol. This will be specified in the conditions of your RUA.

Method

- A detailed floor plan of the laboratory should be drawn up to include all radionuclide work areas, storage locations, and equipment used.

- The floor plan should be copied, dated, and the wipe locations identified on the map. The results should be attached to the map along with an indication of which wipe test was used for the background count. The background serves as a reference for monitoring and an integrity check on all machines with internal standards.
  
  Note: Wipe tests should cover approximately 100 cm$^2$ (i.e., 4" x 4").

Standards

- Areas that exceed the following guidelines are to be considered contaminated.

<table>
<thead>
<tr>
<th>Restricted Area Type</th>
<th>Alpha Emitter</th>
<th>Beta, Gamma Emitter</th>
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<tbody>
<tr>
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</table>
Controlled Area

<table>
<thead>
<tr>
<th>Area</th>
<th>(cpm/100 cm²) above background</th>
<th>(cpm/100 cm²) above background</th>
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</thead>
<tbody>
<tr>
<td>Small Contamination Control Zone and Large Contamination Control Zone</td>
<td>88 counts above background</td>
<td>300 counts above background</td>
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<tr>
<td>Small Contamination Control Zone within a Large Contamination Control Zone</td>
<td>176 counts above background</td>
<td>600 counts above background</td>
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</table>

Please refer to Part V D in the Radiation Safety Manual for further definitions of the specific areas.

- Decontaminate the area(s) until the level of contamination is below the above guidelines. Attach the results of the decontamination (i.e., first attempt, second attempt, etc.) to the original results and laboratory map. If you are unable to decontaminate down to acceptable levels, call the Office of Environmental Health and Safety at (530) 752-1493 or UC Davis Health (UCDH) Health Physics at (916) 734-3355 for further assistance.

- Do not attempt decontamination in the case of a major spill (millicurie amounts). Control the area and call the Office of Environmental Health and Safety or UCDH Health Physics. If after normal hours, call 9-1-1 or the Hospital Operator.

Additional References
See SafetyNet #37 [1], “Radioactive Spills, Splashes, and Decontamination” for more information.

Contact

Research Safety
researchsafety@ucdavis.edu 530-752-1493
FAX: 530-752-4527

More information

Related content

1. Radioactive Spills, Splashes, and Decontamination

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Source URL (modified on 01/26/17 02:18pm): https://safetyservices.ucdavis.edu/safetynet/how-monitor-your-lab-radioactive-contamination

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