Appendix C CONTAMINATION LEVELS AND REQUIRED ACTIONS

Any contamination (greater than twice background level) discovered in accessible areas or on items outside of a clearly marked benchtop or fume hood radioactive use work area must be decontaminated promptly even if below the "Low" level in this table.

Type of Contamination	Removable Contamination Levels (pCi/100cm^2)*		
	Low	Mid	High
Alpha Emitter (e.g. Am-241)	5 - 10	10 - 100	> 100
Example instrument readings**	Any 10-20 cpm with LSC, 2-4 cpm with alpha detector	Any 20-200 cpm with LSC, 4-40 cpm with alpha detector	Any >200 cpm with LSC, >40 cpm with alpha detector
Gamma or High Energy Beta Emitter (e.g. I-125, P-32)	100 - 250	250 - 1000	> 1000
Example instrument readings**	P-32 200-500 cpm with LSC, 75-200 cpm with G-M I-125 100-250 cpm with LSC, 150-400 cpm with LEGS	P-32 500-2000 cpm with LSC, 200-800 cpm with G-M I-125 250-1000 cpm with LSC, 400-1500 cpm with LEGS	P-32 >2000 cpm with LSC, >800 cpm with G-M I-125 >1000 cpm with LSC, >1500 cpm with LEGS
Low or Intermediate Energy Beta Emitter (e.g. H-3, C-14, P-33)	1000 - 2500	2500 - 10000	> 10000
Example instrument readings**	H-3 detectable with LSC only, 1000-2500 cpm C-14 1500-4000 cpm with LSC, 75-200 cpm with G-M	H-3 detectable with LSC only, 2500-10000 cpm C-14 4000-15000 cpm with LSC, 200-800 cpm with G-M	H-3 detectable with LSC only, >10000 cpm C-14 >15000 cpm with LSC, >800 cpm with G-M
Required Actions	Should be decontaminated promptly, but may be tolerated in a particular work situation. (Must be in a clearly marked radioactive work area.)	Must be decontaminated promptly. If repeated instances occur or large areas are discovered, the PI may be required to report to the RSC stating the reason for the incident(s) and actions taken to minimize the risk of a repeat.	Requires immediate action. The PI and RSO must be informed. Depending on the extent of the contamination, further use may be suspended until decontamination is completed. The PI may be required to report to the RSC stating the reason for the incident and actions taken to minimize the risk of a repeat.

* "Removable contamination" means the amount of radioactive material which would be removed by wiping a surface with an absorbent material (e.g. filter paper) using moderate pressure. The RSO may designate higher limits for a Type D laboratory or lower limits for certain nuclides.

** Example instrument readings are given in counts per minute (cpm) above background for counting wipes in a liquid scintillation counter (LSC); direct measurements using a thin-window Geiger-Mueller (G-M) detector or low energy gamma scintillator (LEGS) detector at 1 inch from the surface; or direct measurements using an alpha detector on contact with the surface. The examples are based on typical values for the efficiencies of different types of detectors and the percentage of material which would be removed by a wipe of the area. Refer to the *Radiation Safety Reference Handbook* for more information on the selection and use of detection instruments.

The degree of hazard involved with radioactive contamination is dependent on a number of factors such as total area, radionuclide, chemical/physical form, accessibility to the area, and permeability of surface. Radiation Safety Office professionals are available to assess hazards and to provide guidance and assistance in decontamination.