

School/Faculty:

RSO:

Building:

Room:

Room Diagram

Instruction: 1) Draw or attach a diagram of the room

2) Note potential survey locations on the diagram with number ① ② ③

Survey Instruments

Code #	Device manufacture & model	Serial #	Calibration due	Instrument type		
01				GM	Scint	LSC
02				GM	Scint	LSC
03				GM	Scint	LSC
04				GM	Scint	LSC
05				GM	Scint	LSC

GM = Geiger Muller, Scint = Scintillator, LSC = Liquid Scintillator Counter

Action Level*

The action level is 3 times background count of a clean area (with any detectors) or 5 cps (counts per second) with a GM pancake detector. The background level is measured at a radiation free contamination area, natural background only, normally outside of the radiation room.

Survey Results

Survey must be performed before and after the radiation work & at the end of the month for all active radioactive labs
 Surveys can be conducted by RSOs, lab managers, HSW coordinators/lead, or lab radiation workers.
 All survey records must be available for inspection and kept for at least 5 years

If contamination is found

	Date	Instrument Code #	Background cps	Location per Diag.	Results cps	Survey by	Cleaned**	Labelled	Disposed (waste)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

**Resurvey and note Results

Radioactive Lab Survey Focus

When and Where to Survey

- 1) Frequent surveying is crucial while working with licensable radioactive substances.
- 2) Conduct a survey before and after the radiation work & at the end of the month for all active radioactive labs.
- 3) All the radioactive labs must be equipped with appropriate detectors for surveying against the specific radioisotopes used.
- 5) It is also recommended to perform this survey for labs handling sublicensable radioactive sources.

Select the Detector & Survey Method

Isotope	Suggested detector & method	Notes
H-3	WIPE survey only; Liquid scintillation counter (LSC) only	The typical WIPE survey method uses dry filter papers or swabs wiped over potentially contaminated surfaces, which are then analyzed with a liquid scintillation counter (LSC). This method is the standard and acceptable practice for detecting the isotope H-3 because it emits low-energy beta particles (18.6 keV), which are very weakly penetrating and not easily detectable by many common radiation detectors.
C-14, S-35	WIPE survey (preferred)/ surface contamination survey (acceptable); GM Pancake or Scintillation.	C-14 emits beta particles (maximum energy of 156 keV) and S-35 emits beta particles (maximum energy of 167 keV). WIPE tests are effective for detecting surface contamination and are preferred. GM pancake detectors can detect the beta particles from these isotopes, although the efficiency might be lower compared to LSC. However, GM pancake detectors are still useful for quick checks and contamination monitoring on surfaces.
I-123, I-124, I-125	Surface contamination survey or WIPE survey; Scintillation (preferred) / GM pancake (acceptable)	I-123 (gamma emitter; 159 keV), I-124 (gamma emitters; 602 keV and 511 keV), and I-125 (low-energy gamma rays around 35 keV and x-rays) are best detected with scintillation detectors, particularly those using sodium iodide (NaI(Tl)). These detectors are highly sensitive to gamma radiation and provide good energy resolution. Although GM pancake detectors are not ideal for precise measurement or identification of specific gamma-emitting isotopes like I-123, I-124, and I-125 (as they are more sensitive to beta particles and some gamma radiation but lack the energy resolution to distinguish between different isotopes based on gamma emissions), they can still be used for contamination monitoring and quick surveys.
Other isotopes	Surface contamination survey or WIPE survey; GM Pancake or Scintillation	



GM Pancake



Scintillation



LSC

Examples of GM, scintillation, and LSC radiation detectors