

**University of Aberdeen**  
**Institute of Medical Sciences**

**LOCAL RULES**

**These rules apply to the following areas:-**

**1st floor**

1.16      Ward/Crane/Wilson  
1.34      Fleming

**2nd floor**

2.02      Donaldson  
2.38      Müller/Connolly

**6th floor**

6.38      Crane  
6.41      Pertwee  
6.50      not in use

**Issue date **July 2022****

**Review date **July 2024****

**Note: If you are readings this document after the review date please  
check with your RPS that you have the latest version**

**Overview**

- Only registered and suitably trained workers are permitted to work with isotopes in the IMS.
- Registration is initiated using the Isoinventory software (<http://isoinventory.abdn.ac.uk/>).
- Completion of the online radiation user training course (accessed via <https://www.abdn.ac.uk> Health and Safety, Resources, Radiation, Ionising Radiation) is mandatory before users can be registered. It is also mandatory for new users even if they have completed a similar course elsewhere.
- Supervisors and/or line-managers are responsible for ensuring that all technical or research staff and post-graduate students in their groups are registered to use isotopes *before* any such work commences.
- Registration **MUST** be completed before any request is made for access to the isotope suite 6.38.
- Supervisors and/or line-managers are responsible for ensuring that all workers are fully familiar with the Isoinventory software system that is used for isotope registration and the keeping of records of their usage and disposal.
- Completion of a refresher course online is required every 3 years.

**Isotope users who do not comply with these rules may be subject to disciplinary action including being barred from working with isotopes.**

### 1. Radiation protection supervisors:

If you have any problems with the Isoinventory system, problems with 6.38 or with the safety aspects of the use of isotopes please contact your RPS.

Isabel Crane	room 5.19	7529	<a href="mailto:i.j.crane@abdn.ac.uk">i.j.crane@abdn.ac.uk</a>
Fiona Murray	room 6.20	7594	<a href="mailto:fmurray@abdn.ac.uk">fmurray@abdn.ac.uk</a>
Ian Fleming	room 6.16	8357	<a href="mailto:i.n.fleming@abdn.ac.uk">i.n.fleming@abdn.ac.uk</a>

Isabel Crane has responsibility for lab 6.38, Fiona Murray for the other 6<sup>th</sup> floor labs and Ian Fleming for 1<sup>st</sup> and 2<sup>nd</sup> floor labs. They are available to help resolve any issues or queries with respect to the use of radioisotopes on the respective floors. Adhesive labels to be attached to any solid radioactive waste bags prior to disposal are also available from the specific floor RPS. They will also record the transfer of the bag to the University radioactive waste store on Isoinventory. Issuing and collection of dosimeters will be overseen by Isabel Crane (rings) and Ian Fleming (badges).

The lead RPS, Isabel Crane, is in overall charge of radiation safety within the IMS. The lead RPS is responsible for overseeing implementation of all University and local rules within the building, management of new radioisotope user registrations and for liaising with the Radiation Protection Adviser for the University, Dr Stephen McCallum. The lead RPS is also responsible for supervision of the radioisotope storage facility (6.38), regular auditing of radioisotopes and radiation areas within the building and for overseeing the ordering of radioisotopes.

In the event of an emergency involving radioisotopes, you should contact the nearest RPS. If they are not available, then a list of all RPSs within the building is posted on each of their doors.

The RPS for the Polwarth building is Dr Gary Cameron (phone 438615). If any radio-isotope work is to be carried out in the Polwarth building then Dr Cameron should be contacted prior to the start of work.

### 2. Designated areas

	Supervised radiation areas
None	IMS rooms 1.16, 1.34, 2.02, 2.38, 6.38, 6.41, 6.50

### 3. Unsealed Radionuclides used

Radionuclide	Half Life	Emissions	Contamination monitor
H <sup>3</sup>	12.3 years	β	Wipe tests, liquid scintillation counting
C <sup>14</sup>	5570 years	β	GM detector e.g. EP15
P <sup>32</sup>	14.5 days	β	GM detector e.g. EP15
P <sup>33</sup>	25 days	β	GM detector e.g. EP15
S <sup>35</sup>	87 days	β	GM detector e.g. EP15

I <sup>125</sup>	60 days	γ	44A scintillation detector
Ca <sup>45</sup>	165 days	β	GM detector e.g. EP15
F <sup>18</sup>	110 minutes	β+	GM detector e.g. EP15

#### 4. Holding and disposal limits for the IMS (MBq)

Radionuclide	Holding	Drain disposal/month
H <sup>3</sup>	1400	1400
C <sup>14</sup>	400	400
P <sup>32</sup>	200	90
P <sup>33</sup>	200	90
S <sup>35</sup>	100	60
I <sup>125</sup>	130	125
F <sup>18</sup>	50	

#### 5. Radiation Equipment in the IMS

PerkinElmer Tri-Carb 2800TR liquid scintillation counter in 6.41  
 Packard Tri-Carb 1900CA liquid scintillation counter in 6.38  
 Wallac 1450 Microbeta Trilux liquid scintillation counter in 1.16  
 Wallac 1400 liquid scintillation counter in 1.49

#### 6. General Lab arrangements

These rules must be posted in each laboratory where radioactive materials are handled. A prior risk assessment must be carried out before commencing new work activities and recorded using the forms on the Isoinventory system or suitable alternative as advised by the RPA.

##### Access to the lab

- Access to radiation areas should be restricted to those who have been trained and are directly involved in the experiment. Only trained, registered workers may handle radioactive isotope.

##### General

- Work with radioactive materials should only be carried out in designated areas identified in section 2. If you wish to carry out work in an area not identified in section 2 then contact your RPS for advice
- Principal Investigators with the help of the RPS are responsible for ensuring that all University and local rules regarding use of radioisotopes within their laboratories are adhered to. Principal Investigators are also responsible for the day-to-day practical training of those workers in their groups who use radioisotopes.
- Experiments should be carefully planned and should only take place if no other equivalent experiment which does not involve radioactive substances exists. We are obliged by SEPA to ensure that any experiments that require the use of an isotope utilises the minimum quantity of radioactivity that will ensure a viable result.

- Users should limit the amounts of radioactive stock solutions kept within the IMS to that required in the immediate future. Stocks stored for several years, even those containing isotopes with long half-lives, are unlikely to retain any biological activity.
- Consideration should always be given to using the least hazardous radionuclide for example P-33 should be used in preference to P-32.
- Experiments involving radioactive materials must only be carried out by suitably trained staff/students. A member of staff or student wishing to undertake work with unsealed radioactive substances **must** first have completed the basic radiation safety course, available online <https://www.abdn.ac.uk/staffnet/working-here/resources-5988.php>. Previous experience/training elsewhere is **not** sufficient. Additionally the principal investigator must ensure that all staff or students working on the experiment are proficient in basic laboratory techniques, and in the protocols required for the experiments with isotope, before they start manipulation of radioactive substances unsupervised. It is important that all staff involved in this work are suitably trained in carrying out contamination monitoring. A refresher course should be completed every 3 years.
- All radioisotopes users must ensure that storage, usage and disposal of radioisotopes is recorded promptly on Isoinventory (<http://isoinventory.abdn.ac.uk/>). In the case of disposal of radioisotopes to drain, this disposal should be entered on Isoinventory immediately before the disposal is made. This is to ensure that we do not exceed the monthly discharge limits as determined by SEPA.
- From time to time it may be necessary to decommission labs or areas in labs no longer required for isotope work. When this is done it is vital that comprehensive monitoring is performed to ensure that all working surfaces, floors, equipment, drains and flow hood are free of radioactive contamination. A form must be completed to document these checks and is available from the lead RPS. You are advised to speak to the lead RPS before commencing decommissioning of any lab in the IMS.

### lab procedures

- Observe all the basic laboratory safety procedures:
  - There must be **no** eating, drinking or applying cosmetics in the laboratory
  - Never use your mouth to pipette
  - If you see a colleague doing something dangerous, point it out to him/her immediately and if necessary report it to your Principal Investigator. Your RPS can also be contacted if you feel that this is necessary in order to avoid dangerous practices.
  - Work must not be carried out by a person with an undressed cut or abrasion below the wrist
- Lab coats must be worn at all times when entering a supervised area. When unsealed sources are being handled or manipulated you must wear disposable gloves that are pulled up over the lab coat cuff and protective eyeglasses.
- Work should be carried out over trays wherever possible.
- Area contamination monitoring should take place **before** starting work and **after** the work is completed. Procedures for carrying out and recording contamination monitoring are explained in section 11, appendix 1. If significant contamination is found then decontaminate following the advised procedure.

- If using isotopes other than Tritium always check your gloves, hands and laboratory coat for radioactive contamination before leaving the supervised area –You must record this check on the contamination record
- Wash your hands using the hand wash sink before leaving the laboratory.
- All apparatus being used with radioactive materials must be labelled using “radioactive” warning tape. The tape must be removed when the apparatus has been washed and found to be clear of contamination.
- Radioactive substances must only be removed from controlled or supervised areas in closed uncontaminated containers.
- Radionuclides emitting penetrating radiations must be adequately shielded. Lead shielding must be used for gamma emitters and perspex shielding for beta emitters.
- Containers for radioactive materials other than Carbon - 14 and tritium should not be directly held in the unprotected hand. (Note: the outside of containers of Carbon-14 and H-3 can become contaminated so it is good practice to wear gloves when handling them). Tweezers should be used for handling sealed radioactive sources.
- Contamination must be contained without delay and you must be familiar with the contingency procedures given in section 15
- Keep time manipulating radioactive substances to a minimum.
- Place any waste items in the appropriate bin as described in section 14
- Keep all radioactive materials in labelled containers and stored in a designated fridge. In general, fridges that are used to store radioactive materials should not be used to store non-active items. If it is necessary to use a fridge for active and non-active items there should be clear demarcation and additional containment for the active items.
- In case of emergency remain calm and follow the contingency procedures.

## **7. Local arrangements and procedures**

Normally, all radioisotope sources must be stored in 6.38. See section 13 below.

## **8. Pregnant and breast feeding females**

Any worker who becomes pregnant should inform the Radiation Protection Supervisor as soon as possible and discuss the situation. It is also the University's policy that anyone who works with any form of ionising radiation and becomes pregnant should be given the option of alternative work. This recommendation would also apply to breast feeding mothers. However if the pregnant or breast feeding worker continues working a risk assessment should be carried out to assess the hazard and additional protection measures that may be required. The RPA can advise.

## 9. Personal Monitoring

If you are issued with a personal dose monitor you must wear it and it is your responsibility to look after it. These badges should be worn at hip or waist level. For work with certain isotopes, dosimeters may have to be worn on the fingers or at neck level. If you lose your dosimeter or it is damaged (or goes through a washing machine) tell the appropriate RPS without delay and arrangements will be made to issue a replacement. You should stop working with radioactive materials until a replacement monitor has arrived.

If you consider that your work requires a personal dose monitor, contact the RPS. If it is agreed that you require a dosimeter, then the RPS will arrange for one to be issued to you and for collection at the required intervals.

## 10. Dose investigation levels

The following dose investigation levels apply.

	Effective whole body dose (mSv)	Equivalent dose to the skin (averaged over <100cm <sup>2</sup> ) (mSv)	Equivalent dose to lens of the eye. (mSv)	Equivalent dose Hands, forearms, feet and ankles (mSv)
<b>Investigation level</b> (over the wear period of the dosimeter <sup>1</sup> )	0.3	7.5	2	7.5

<sup>1</sup>wear period will either 1 or 2 months as directed by RPA

If one of these levels is exceeded an immediate investigation should take place to establish why the level has been exceeded and any preventative actions that are required.

## 11. Contamination monitoring

Contamination monitoring must be carried out before commencing any work with unsealed radioisotopes and after completion of the work. Routine monitoring of the area should also take place every two weeks unless the area is not being used for radioisotope work for a period of time. Users should also monitor themselves when work is completed or during work if contamination is suspected.

See **Appendix 1** for a detailed description of contamination monitoring procedures.

## 12. Ordering radioactive materials

**Sealed sources must not be ordered**

**Ordering of unsealed sources**

The amount of a radioisotope that can be held in the IMS is limited (section 4). To place an order for an unsealed radioisotope, you must register your request to place an order in Isoinventory. To do this, go to "Order Request" from the main menu. You must then **select the correct assessment number from the drop-down menu and associate your order request with this assessment.** (Note that assessments for specific radioisotopes must be completed and approved by the Radiation Protection Adviser prior to placing any order for that specific type of source. Also note

that all assessments must include a description of procedures for measuring or estimating the activity of each waste item - see section 14). Fill in the required fields under "Order Request" and click "save" once completed. A radioisotope registration number (ISO number) will be given to this order request. This number must be placed in the order as entered on the finance system. **The order will not be processed without a radioisotope registration number.**

Vial arrival: Parcels must be signed for by one of the stores staff. If no-one is available to sign for radioactive source parcels they are returned with the courier. Radioactive source parcels are never left outside stores. If the package is undamaged the box is delivered to the lab by stores staff. Parcels containing radioactive material must be signed for by a member of the lab. If no-one is available to sign for the parcel, the parcel is brought back to stores for safe-keeping until a lab member can be contacted. If a parcel appears to be severely damaged the end-user will be asked to come down to stores to check it is safe to transport.

The radioactive source must then be stored by the end user in 6.38 as appropriate for the radioisotope (in the fridges or freezers of lab 6.38). The end-user must log receipt of the source into the Isoinventory system. The Isoinventory registration number must also be written clearly on the radioisotope container.

### **Radioisotopes from non-commercial sources and NHS Grampian**

Before any gifts of radioisotopes are accepted they must be discussed with an RPS. This is to ensure that we do not receive any radioisotopes that are not covered by our registration and also to ensure that our storage limits (section 4) are not exceeded.

Special arrangements must be in place and documented for positron emitting sources transferred from the NHS Grampian Cyclotron unit. Contact the RPA for advice.

### **13. Storing radioactive materials**

Isotopes stored in the IMS are kept in room 6.38. **All isotopes must be placed in 6.38 upon their arrival and must remain in 6.38, with the exception of short lived positron emitting sources.** To obtain isotope for use in an experiment, users must go to 6.38, obtain an aliquot of the isotope and then take the aliquot to their own laboratory.

Entry to 6.38 is made using your ID card and is restricted to registered isotope users only. **Do not lend your card to others – you will be held responsible for any mistakes or infringements made by them.** All users of this room whether dispensing isotopes or performing experiments with isotopes must perform pre- and post-contamination checks and complete the results of these and the other required details on the forms provided. Note that numbers must be written in the columns for cpm before and after completion of any operation. Do not simply put ditto in these columns (e.g. if the counts read between 1 and 2 cps then write 1-2 in the relevant column). **Please note that the entry system allows usage of the room to be monitored to ensure that all those accessing 6.38 adhere to the local rules.**

Room 6.38 is a multi-user facility and should therefore be kept in a clean, tidy and contamination-free state.



## 14. Disposing of radioactive waste

Each laboratory must have in place **procedures for measuring or estimating the activity of each waste item**. For instance, an experiment may produce both liquid waste and solid waste and, whilst the majority of waste activity will be disposed of as aqueous liquid, there may be radioactive residue deposited in vials or other disposables. There must be a documented method for estimating or measuring the activity of such residuals.

Such **documented methods must be entered into the Assessment required to be completed within the Isoinventory software** for the use of each radioisotope by each group, under the "Description of Work" section within the Assessment. Assessments will not be approved if they do not contain explicit methods for such estimations.

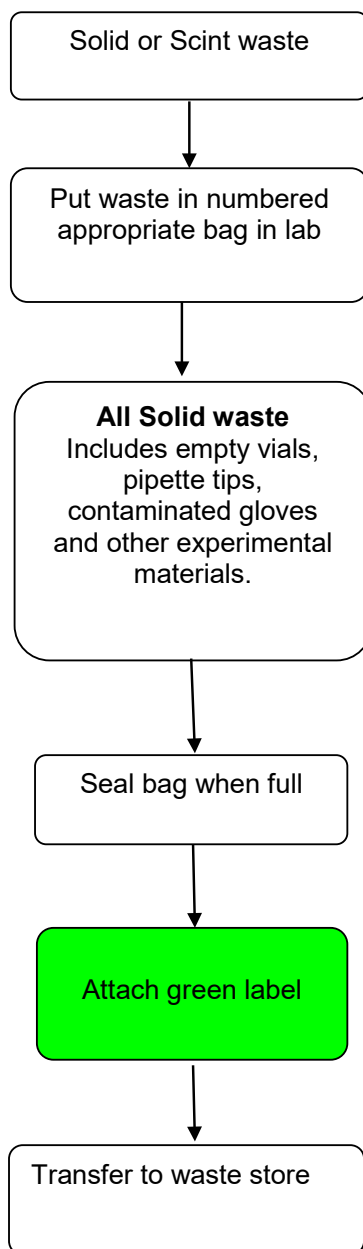
### Aqueous Liquid Waste

This may be disposed of only via the approved sinks in the radioactive laboratories and with the following precautions:

- The radioactive waste should be poured carefully and directly into the waste outlet.
- The total activity of waste discharged per month must not exceed the maximum permitted under the terms of the Authorisation Certificate for the IMS (section 4).
  - Liquid waste disposals should be logged onto the isoinventory system before disposal is made to ensure limits are not breached.
- If radioactive liquid waste also contains chemicals which are not allowed to be disposed of down drains please contact the RPA.

### Solid waste

Solid waste should be disposed of according to the following diagram.



Heavy duty white plastic bags suitable for use as radioactive waste bags are available from the IMS stores. Bags should be sealed using blue zip ties, also available from the IMS stores.

Scintillation waste and vials must be disposed of using a solid plastic bin with a sealable lid to prevent leakage in the waste store.

When solid waste bags are ready for sealing and transfer to the University radiation waste store outside the IMS, the registered radiation worker responsible for the bag must contact their floor RPS who will issue them with the appropriate sticker. The RPS will then enter into Isoinventory that the bag has been transferred.

Do not dispose of non-radioactive waste with radioactive waste. If you are unsure check the waste with a suitable contamination monitor. Be sure to remove references to radioactivity; for example, the outer labels of cans should be removed or obliterated or otherwise defaced.

If solid radioactive waste also contains any biohazardous, clinical or infectious waste please contact the RPA for advice on disposal.

## 15. Contingency arrangements

### RADIATION SPILLAGE

1. Immediately alert personnel working near the area of the radiation spill and if possible alert your nearest RPS. If in doubt contact the radiation protection service for help and advice (the Radiation Protection Adviser, Stephen McCallum, can be reached on 53109). Any personnel not required to deal with the spillage should remove themselves from the area after checking themselves for contamination.
2. Put on lab coat, plastic apron, gloves and overshoes. Overshoes are important to ensure that your footwear does not become contaminated. Please ensure that there is a supply of these in your lab. In an emergency your nearest RPS will have some spares.
3. Do not allow anyone to walk through the spillage and spread the contamination. If possible isolate and cordon off the area.
4. Use a contamination monitor to locate areas of contamination on the work bench, floor and workers.
5. **If a worker has become contaminated deal with them first** (although it would be prudent to cover the spillage with absorbent material such as paper towels to prevent it from spreading.)
  - If a worker believes they are contaminated they should always attempt to locate the contaminated area and decontaminate just that area. Only if large areas of the body are contaminated should staff resort to a full body shower.
  - **Contamination of the skin, hands, arms.** If contamination is found on the hands staff should remove and discard gloves and re-monitor their bare hands. If still contaminated then the hands should be washed using a suitable detergent and then re-monitored and if necessary a soft brush should be used. Care should be taken not to break the skin. Other areas of exposed skin should be washed in a similar manner and re-monitored. The RPS should make a suitable report of any incident, including an estimation of dose, and submit to the RPA.
  - **Contamination in the eyes.** If a member of staff suspects that radioactivity has splashed into their eyes, they should use an eye bath. Another member of staff should then take a reading using the contamination monitor. If contamination persists then contact the RPA. The RPS should make an appropriate report any incident, including an estimation of the dose, and submit it to the RPA.
  - **Contamination on clothing.** If contamination is found on a lab coat or other clothing it should be removed, bagged and either disposed of or be allowed to decay.

6. Cover the spillage with absorbent material such as paper towels to prevent it from spreading.
7. Remove as much contamination as possible by absorbing the spill on paper towels. Contaminated towels should be disposed of as radioactive waste.
8. Ensure that any glass that has broken is placed in a sharps bin and labelled as radioactive.
9. Any residual contamination should be cleaned using a detergent (eg 5% Decon). When mopping up always work from the outside in.
10. Monitor the area to ensure that all the activity has been removed.
11. If the area has been cleared of radioactivity, remove the tapes and signs.
12. Remove apron, overshoes, gloves and bag, monitor and dispose as radioactive waste if necessary
13. Monitor hands, lab coat, clothes and feet to ensure that they are not radioactive.
14. If clothes or shoes become contaminated, remove them and bag them. If mildly contaminated they should be washed as normal before they are worn again.

# Appendix 1

## Area Contamination Monitoring Procedures

### A1.0 Introduction

Contamination monitoring should be carried out **before** commencing any work with unsealed radioactive material and **after** completion of the work (see A1.1). In labs where isotopes with half lives greater than 24 hours are used, a check of the area should be made every 2 weeks (see A1.2). Users should also monitor themselves when work is completed or during work if contamination is suspected. If a significant spill occurs then follow the lab contingency plans given in the local rules.

Contamination monitoring must be recorded in each lab or work area on the *contamination monitoring record* provided at the end of this appendix. In labs where both tritium and other radionuclides are used it may be helpful to use a separate form for tritium. Both daily *before and after work* checks and, *area* checks should be recorded on this sheet. Each column should be dated and records for that day entered in that column. If multiple experiments take place or if contamination is found then more than one column can be used for each day.

For *before and after work* monitoring the PI/lab supervisor should decide in consultation with the RPS the areas and equipment that should be checked and they should be entered into the first column for the record sheet under *readings before experiment* and *readings after experiment*.

For area checks the PI/lab supervisor should decide in consultation with the RPS which areas should be monitored and a plan should be drawn up on the reverse of the monitoring record sheet indicating the areas to be monitored and allocating them a number. If you require more than 5 areas add them to the first column on the monitoring sheet under weekly check.

### A1.1 Contamination Monitoring Before and After Work with Radionuclides

#### A1.1.1 Instructions for monitoring all radionuclides except tritium (H-3)

1. Select an appropriate contamination monitor (see table A5.1) and check the battery status and the last calibration is within 12 months.
2. Note the background radiation level on the monitor away from the work area and enter this number into the *background 1 box* on the monitoring record. Typical background readings are:

GM detector e.g. EP15 or type E	< 5 cps
Scintillation detector e.g. 44A	5 – 15 cps
3. Before starting work, monitor the work area, floor in front of experiment and any items noted on the monitoring form. Monitoring should be carried out slowly and methodically with the probe held about 1cm from the surface being checked. Enter readings in the each box (no ditto marks!).
4. If the area is contaminated note this on the monitoring record. Wearing gloves, decontaminate any areas where the reading is more than 2 times the background. Wipe the area using a paper towel and 5% decon solution or other suitable cleaning agent. Dispose of the paper as radioactive waste. Monitor the area again and repeat this process until the reading is below the action level and record the result on the record sheet. **If you are unable to decontaminate successfully contact your RPS for advice and ensure no further work is carried out in the area until the issue has been resolved, make a note of this action on the monitoring record.**

5. After completing the work monitor the work surface, floor around work area, the disposal sink and any other areas noted on the monitoring sheet under *readings after experiment*.
6. Decontaminate any areas if necessary as in 4 above.
7. Finally check your gloved hands and lab coat for contamination and any other locations that may have become contaminated. If you find your gloves are contaminated remove them and dispose as radioactive waste and recheck your hands. If your un-gloved hands are contaminated then wash them without delay using a liquid detergent. Contaminated lab coats or other clothing should be bagged and allowed to decay or disposed of as radioactive waste. **If in doubt ask a colleague to help and follow the contingency plan in the local rules.**
- 8.

Radionuclide	Contamination Monitor	Action Level
Tritium (H-3)	Wipe tests	2 times the background reading
Carbon-14	GM detector e.g. EP15; <b>Cap off</b>	
Phosphorus-32		
Phosphorus-33		
Sulphur-35		
Copper-67		
Iodine-125	44A scintillation detector	
Iron 59	GM or Scintillation detector	
Carbon-11	GM detector e.g. EP15; <b>Cap off</b>	
Nitrogen-13		
Oxygen-15		
Fluorine-18		

**Table A1.1** Contamination monitor for common radionuclides  
If the radionuclide does not appear on the list then check your risk assessment or contact your RPS.

### Instructions for monitoring of tritium

Contamination monitors are not sensitive enough to detect the low energy beta radiation emitted by tritium. Monitoring must therefore be done using wipe tests. It is normally assumed that 10% of any contamination will have been transferred to the wipe. The monitoring procedure is the similar as described in A1.1.1 above with wipe tests substituted for monitoring with a contamination meter.

1. Take 2 steret wipes or swabs and place each straight into a separate scintillation vial with appropriate quantity of liquid scintillant to obtain 2 background readings. The background readings should be entered on the monitoring sheet as background 1 & 2.
2. Before starting work use a steret wipe or swab to wipe an area of about 100 cm<sup>2</sup> for small objects or surfaces and 1000 cm<sup>2</sup> for larger surfaces such as benches or floors. Use a separate wipe or swab for each item listed on the monitoring sheet
3. Place the wipe in a scintillation vial with appropriate quantity of liquid scintillant.
4. Count the samples in a liquid scintillation counter. The action level is set at 2 times the average background reading.
5. Decontaminate any areas with readings above the action level as described in 5.1.1.

6. Take further wipe tests after completing the work, including the work surface, floor area, disposal sink and any other item noted on the monitoring sheet.
7. Decontaminate if necessary and record actions on monitoring sheet.
8. **If the decontamination was unsuccessful then contact your RPS for advice and ensure no further work is carried out in the area until the issue has been resolved.**

### A1.2 Area checks

In addition to the monitoring described above, in labs where long lived radioisotopes are used, checks of a larger area should be undertaken every 2 weeks or after every experiment if work is infrequent. This is to ensure that there is no build-up of radioactivity over time. Checks should extend into 'clean' areas and include 2 or 3 random areas of the lab to confirm that there is no contamination outside the normal work areas such as door handles, telephones and fridges. Monitoring should be carried out as shown below:

Radioisotope	Routine monitoring method
Tritium (H-3)	Wipe tests, liquid scintillation counter
Carbon-14	
Phosphorus-32	
Phosphorus-33	
Sulphur-35	
Iodine-125	Wipe tests with gamma counter if available, or scintillation detector
Iron-59	

A plan of the lab should be drawn on the back of the monitoring record sheet with the areas that are monitored marked on it see A1.0. An entry should be made on the record sheet every time monitoring is carried out, whether contamination is found or not. If a lab is not used for a period of time, there is no need to carry out routine contamination checks, but this should be indicated on the record sheet.

### Contamination Monitoring

Lab/Lab area	Radionuclides							
Monitoring method								
Enter counts recorded in each column. Where counts are over 2 times above background average please decontaminate, recount and enter new count in next column.								
Name								
Signature								
Initials								
Date								
<b>Readings before experiment</b>								
Background 1								
Background 2								
Work area								
pipettes								
container								
Other equip -specify								
Floor in front of exp								
<b>Contaminated (Y/N)</b>								
<b>Readings after experiment</b>								
Background 1								
Background 2								
Work area								
pipettes								
container								
Other equip -specify								
Floor in front of exp								
Gloves								
Labcoat								
Hands and wrists								
<b>Contaminated (Y/N)</b>								
<b>Twice weekly lab check or with every experiment if experiments are less frequent</b>								
Background 1								
Background 2								
Area 1 on lab plan								
Area 2 on lab plan								
Area 3 on lab plan								
Area 4 on lab plan								
Area 5 on lab plan								
<b>Contaminated (Y/N)</b>								



**Radionuclides used:** \_\_\_\_\_

**Date:** \_\_\_\_\_

Plan of lab showing areas to monitored for radiation contamination once every 2 weeks:



## **Appendix 2**

### **Procedure for Administrative Staff Access to Isoinventory**

#### **Grounds for Admin Use of Isoinventory**

The Isoinventory database system was designed for use by staff working with radioactive materials and relevant supervisors. It may be convenient, however, to give administrative staff carrying out tasks related to the use of radioactive materials access to the Iso-Inventory database. Access should be limited to the following purposes:

1. Checking the list of staff registered within Isoinventory as radiation workers.
2. Checking that orders have been entered into Isoinventory, prior to making an order with a supplier

#### **Limitations on Use of Isoinventory**

Admin staff allowed access to the database will be given a user account with RPS privileges in order to access the information they will require. An account at this level will also give the user access to system functionality unconnected to their role, the use of which could have implications in the management of radioactive substances and waste. As such, the following usage rules must be observed:

1. Admin staff may only access areas of Isoinventory they have been approved to use, normally the "Find and Edit Users" and "Place or Print Order" sections.
2. Admin staff may not edit user data or access other parts of the system without prior authorisation of the relevant RPS for the department.
3. Any actions carried out accidentally in other parts of the system should be reported to the RPS.
4. Login details must not be shared with others.

#### **Registration of Admin Staff**

As with all users of the system, an account must be created by completing a new-user application, accessed from the Isoinventory front page. Many of the required fields will not be relevant as they are intended for users of radioactive material, so admin staff should clearly state their role on the form.

User applications must be approved by both the area RPS and the RPA before the member of staff will be able to use the system. The RPA must ensure that admin staff are given RPS privileges when approving applications.

