



**GUIDANCE ON THE HIGH-ACTIVITY SEALED
RADIOACTIVE SOURCES AND ORPHAN SOURCES
REGULATIONS 2005**

**Version 5.0
October 2007**

1 INTRODUCTION

- 1.1 This guidance is intended for users of sealed sources at Band B and Band C premises (i.e. non-nuclear premises) but it will also be used by SEPA Environmental Protection and Improvement staff involved in determining registrations and authorisations under the *Radioactive Substances Act 1993* (RSA93) and inspection of premises regulated under RSA93.
- 1.2 Council Directive 2003/122/Euratom on the control of high-activity sealed radioactive sources and orphan sources (the “HASS Directive”) was introduced to provide a regulatory framework for the control of sealed radioactive sources that have the potential to cause harm if they are not adequately controlled. The HASS Directive has been transposed into UK legislation as *The High-activity Sealed Radioactive Sources and Orphan Sources Regulations 2005* (SI 2005 No 2686) and these regulations are accompanied in Scotland by Directions to the Scottish Environment Protection Agency (*The HASS (Scotland) Directions 2005*).
- 1.3 Many of the controls required by the HASS Directive were already implemented in UK legislation by the *Radioactive Substances Act 1993* and the *Ionising Radiations Regulations 1999* (IRR99), and further controls are implemented through the limitations and conditions that SEPA includes in registrations and authorisations granted under the Radioactive Substances Act. High-activity sealed radioactive sources (HASS) are defined in Annex 1 of the HASS Directive and the activity above which a source becomes a HASS is dependent on the radionuclide. Appendix 1 of this guidance lists the threshold for HASS for the majority of commonly used radionuclides.
- 1.4 In addition to implementing the requirements of the HASS Directive, the *High-activity Sealed Radioactive Sources and Orphan Sources Regulations 2005* also introduced a regulatory regime for the security of sealed radioactive sources on civil non-nuclear sites. This formalised the previous voluntary system of inspections carried out by the police counter terrorism security advisers.
- 1.5 The Regulations apply to new HASS (i.e. those first placed on the market on or after 1 January 2006) from 1 January 2006 and to existing HASS (i.e. those first placed on the market on or before 31 December 2005) from 1 January 2008. The regulatory authority for Scotland is the Scottish Environment Protection Agency (SEPA) except for HASS that are kept, used, accumulated or disposed of on nuclear licensed sites in which case the Health and Safety Executive’s Nuclear Installations Inspectorate is the regulatory authority.
- 1.6 The *Radioactive Substances Act 1993* already requires persons keeping or using radioactive sources to hold a registration and persons accumulating or disposing of radioactive waste to hold an authorisation; both of these circumstances satisfy the requirement for “authorisation” under the HASS Directive. If a person is keeping or using HASS and non-HASS sealed sources, the limitations and conditions will be included in a single registration with the additional limitations and conditions for HASS given in separate schedules. Authorisations will be treated similarly.
- 1.7 Subject to the disclaimer below, this guidance sets out SEPA’s current understanding of what source holders affected by the implementation of the HASS Regulations need to do in order to:
 - a. obtain a new or varied registration or authorisation; and
 - b. comply with the limitations and conditions of such a registration or authorisation.

Implementation of some of the requirements of the HASS Regulations and HASS Directions are still awaiting guidance from the Scottish Executive (for example, on financial provision), therefore SEPA will revise and reissue this guidance when appropriate.

- 1.8 RSA93 is not the only legislation relevant to the keeping and use of radioactive materials. In particular, people who work with radioactive materials will also be subject to the requirements of the *Ionising Radiations Regulations 1999* (IRR99) which are regulated by the Health and Safety Executive (HSE). Some of the requirements of the HASS Directive, which are included in registration and authorisation conditions, duplicate some requirements of IRR99. Users must comply with both sets of legislation (and any other environmental or other legislation), and SEPA will continue to work with the HSE to ensure a consistent and comprehensive regulatory approach.

DISCLAIMER

This document is a general guide for information only, and reflects the Scottish Environment Protection Agency's current understanding; it is likely to change over time. This guidance does not provide an exhaustive or definitive description of *the High-activity Sealed Radioactive Sources and Orphan Sources Regulations 2005* (the "HASS Regulations") or what is required to comply with them. Individual circumstances will vary, and the conditions and limitations contained in individual registrations or authorisations may therefore vary too. This guidance does not bind SEPA nor fetter its discretion. Applicants and permit holders are recommended to consult the legislation itself, and to seek professional advice where necessary. Nothing in this guidance should be taken to require non-compliance with any other legislation.

2 DEFINITIONS

2.1 What is a "High-Activity Source"?

2.1.1 The HASS thresholds are tabulated in Appendix 1 of this guidance. If the source activity at the time of manufacture is not known, the thresholds apply to the activity at the time the source was first placed on the market.

(Note that the A1 values for some radionuclides, including natural uranium and natural thorium, are unlimited, so the HASS requirements do not apply to sealed sources containing these radionuclides at any activity level.)

A "High-activity source" is:

- a. a sealed source containing a radionuclide which is listed in Annex 1 of the HASS Directive and whose activity at the time of manufacture is equal to or exceeds the relevant activity level specified in Annex 1; or
- b. a sealed source containing a radionuclide which is listed in Annex 1, Table A, of Directive 96/29/Euratom (the BSS Directive) and whose activity at the time of manufacture is equal to or exceeds one-hundredth of the corresponding A1 value given in the International Atomic Energy Agency (IAEA) Regulations for the safe transport of radioactive materials [No. TS-R-1 (ST-1, revised) – International Atomic Energy Agency, Vienna, 2000].
- c. a sealed source, not included in a. or b. above, containing a radionuclide for which an A1 value is given in the IAEA Regulations for the safe transport of radioactive materials [No. TS-R-1 (ST-1, revised) – International Atomic Energy Agency, Vienna 2000] and whose radioactivity at the time of manufacture is equal to or exceeds one hundredth of that A1 value.

2.1.2 A "sealed source" is one whose structure is such as to prevent, under normal conditions of use, any dispersion of radioactive material into the environment, and includes, where applicable, the capsule enclosing the radioactive material as an integral part of the source.

2.1.3 On the grounds of proportionality, SEPA will not be applying the HASS Regulations requirements to gaseous tritium light devices (GTLDs); however, GTLDs are still subject to the requirement for registration (unless held under the terms of an Exemption Order).

2.1.4 In the manufacture of sealed sources, a source becomes a HASS at the point when it is ready for sale, i.e. it is assembled (although not necessarily packaged) and "on the shelf" ready for dispatch to a customer.

2.1.5 A source ceases to be a HASS only when its activity has fallen below the exemption levels specified in the BSS Directive; these activity levels are given in Appendix 1 of this guidance and are different to the HASS threshold levels.

2.2 What is an "existing HASS"?

2.2.1 An existing HASS is a HASS first placed on the market on or before 31 December 2005.

2.3 **What is a "new HASS"?**

2.3.1 A new HASS is a HASS first placed on the market on or after 1 January 2006.

2.4 **What is a "disused source"?**

2.4.1 A disused source is a HASS that is no longer used or intended to be used by the registered user for the practice for which it is registered under RSA93. As at present, a disused source may be classified as radioactive material or as radioactive waste, dependent upon the particular circumstances.

2.5 **What is a "practice"?**

2.5.1 A practice is a human activity that can increase the exposure of individuals to radiation from an artificial source, or from a radioactive substance containing naturally occurring radionuclides which are processed for their radioactive, fissile or fertile properties. This definition does not include emergency exposures.

2.6 **What are "other sources of a similar level of potential hazard to high-activity sources"?**

2.6.1 SEPA has interpreted "other sources of a similar level of potential hazard to high-activity sources" as sources in categories 1 to 4 based on guidance given by the International Atomic Energy Agency (IAEA) in its documents *Dangerous Quantities of Radioactive Material (D-values) (EPR-D-Values 2006)* and *IAEA-TECDOC-1355: Security of Radioactive Sources, Interim Guidance for Comment. IAEA, Vienna, 2003*. The table of D-values is reproduced in Appendix 2 of this guidance. It applies not only to individual sources, but also to aggregations of sources kept at the same location. Advice should be sought from your SEPA inspector or CTSA if you are unsure if this applies to your sources.

3 APPLICATIONS AND TRANSITIONAL ARRANGEMENTS

3.1 When do I need to make an application?

3.1.1 The HASS requirements apply to new HASS sources from 1 January 2006, and to existing sources until 1 January 2008. However, in the interests of regulatory clarity, where a user acquires a new HASS, SEPA will apply the HASS requirements (except financial provision and arrangements for managing disused sources) to all existing HASS that the user holds, as well as to the new HASS.

3.1.2 RSA93 allows SEPA four months from receipt of a completed application to determine it. Therefore the deadline for application for existing HASS is 1 September 2007.

3.1.3 There is no specified timetable for bringing in the security requirements for existing registration and authorisation holders that have sources of a similar level of potential hazard but do not have HASS. SEPA proposes to implement the security requirements on the same timescale as the HASS Regulations are implemented.

3.2 Making an application

3.2.1 Applications for a new registration or authorisation or a variation to an existing registration or authorisation should be made using the appropriate application form that can be obtained from your local SEPA office or from the Radioactivity section of the SEPA website (<http://www.sepa.org.uk/radioactivity/regulation.htm>).

3.3 Charges

3.3.1 SEPA is obliged to recover the costs of regulation under RSA93 from registration and authorisation holders. Applications for new registrations or variation to existing registrations required by the HASS Regulations, are subject to the fees specified in SEPA's RSA93 charging scheme.

3.3.2 Subsistence charges will be applied as specified in SEPA's RSA93 charging scheme.

4. PRE-REGISTRATION OR AUTHORISATION REQUIREMENTS

4.1 General

- 4.1.1 From the appropriate date (see section 3) SEPA must not issue a registration (new or varied) for HASS, or an authorisation for accumulation of waste HASS, unless it is satisfied that:
- a. the applicant has adequate arrangements for the safe management of HASS, including when they become disused sources;
 - b. the applicant has made adequate provision, by way of a financial security or any other equivalent means appropriate to the source in question, for the safe management of sources when they become disused sources; and
 - c. the applicant has in place adequate measures concerning site security as are appropriate to the source(s) and premises in question.

This list is not exhaustive.

- 4.1.2 Similarly, in respect of sealed sources which are not HASS but, in SEPA's opinion are of a similar level of potential hazard, SEPA must not issue a registration or grant an authorisation unless it is satisfied that the security requirements of the HASS Regulations have been adequately met.

- 4.1.3 SEPA will determine whether it is satisfied that the requirements in 4.1.1 have been met by reviewing the information that has been submitted in the application and it may also carry out a pre-registration or pre-authorisation inspection. SEPA will liaise with and take advice from the police counter terrorism security advisers (CTSAs) on the adequacy of security measures and the local CTSA may also carry out an inspection in relation to the application.

4.2 Arrangements for safe management of HASS

- 4.2.1 To satisfy SEPA that arrangements are in place to ensure that HASS will be kept and used (or accumulated if waste HASS) in a safe manner, you will need to demonstrate that you are able to comply with the limitations and conditions of the registration or authorisation that SEPA might issue.

- 4.2.2 You will also need to demonstrate that you have suitable arrangements for the safe management of HASS when you no longer use or intend to use it for the practice for which registration was granted, or for disposing of waste HASS that you are proposing to accumulate. These might be:
- a. a documented agreement with the manufacturer or supplier to take back the source; or
 - b. a documented agreement with another registered or authorised user, or a recognised installation, to accept the source (for reuse, recycling, interim or long-term storage, or disposal).

Other arrangements may be acceptable, but you will need to demonstrate that they provide a similar level of safe management to the above.

4.3 Financial security or other equivalent means

- 4.3.1 You will need to provide evidence that you have made financial provision that meets the requirements of the Scottish Executive guidance, which we understand may be published in the near future.

- 4.3.2 SEPA currently accepts two types of financial provision as standard; these are “public sector underwriting” and “take-back agreements”. Other proposed mechanisms for financial provision will be assessed on a case by case basis by SEPA’s Corporate Lawyer until further guidance is produced.
- 4.3.3 Public sector underwriting is only available to the public sector, e.g. hospitals, and requires a legally binding letter from the parent government department clearly stating that they take responsibility for all costs associated with the disposal of the HASS when it becomes a disused source. Further guidance on the requirements of public sector underwriting can be sought from SEPA’s Corporate Lawyer.
- 4.3.4 Take-back agreements with the supplier or manufacturer of the HASS require a legally binding written agreement between the HASS holder and manufacturer/supplier that the source will be taken back by the manufacturer/supplier when it becomes a disused source. Further guidance on the requirements of take-back agreements can be sought from SEPA’s Corporate Lawyer.

4.4 **Security measures**

- 4.4.1 SEPA will consult the local police CTSA on the adequacy of security measures and have regard to the advice given by the CTSA. A new registration or authorisation relative to HASS and other sources of a similar level of potential hazard will only be granted if the CTSA advises that security measures are adequate.
- 4.4.2 If the application is for the variation of an existing registration or authorisation and security measures are adequate but require some improvement to make them fully acceptable, the registration or authorisation will include a schedule of improvement requirements that will detail the improvement required and the timescale within which it must be implemented.
- 4.4.3 The CTSA’s will base their assessment of the adequacy of security arrangements primarily on guidance produced by the National Counter Terrorism Security Office (NaCTSO) and the National Security Advice Centre (NSAC) in their document *Security Requirements for Radioactive Sources* published in October 2005. The document has a restricted classification but can be obtained from your local police CTSA; SEPA is not allowed to provide copies. The CTSA’s will give advice on security measures and should be contacted by applicants at the earliest opportunity if you are planning any changes to premises where HASS or sources of an equivalent level of potential hazard are kept, used, accumulated or disposed of; this includes any new buildings or refurbishment to existing buildings.
- 4.4.4 Security arrangements may include the physical security of premises and sources, alarm and detection systems and personnel security for those who have access to the sources.

5. REGISTRATION AND AUTHORISATION REQUIREMENTS

Arrangements and financial provision

- 5.1 The pre-registration requirements to have suitable arrangements for dealing with a high-activity source when it becomes disused, and to have appropriate financial provision are reiterated in the registration and are required to continue.
- 5.2 This means that you must ensure that the arrangements remain valid throughout the time that you hold the source. We expect you to check regularly that the organisation with which you have the agreement is still in a position to honour it; if it is not, e.g., if a supplier who had agreed to take back the source goes out of business, you will need to make new arrangements. The frequency and formality with which you carry out such checks will depend on the nature of the organisation and of your relationship with them, e.g. a nuclear licensed site is unlikely to suddenly go out of business, and you are likely to be aware of any potential difficulties with an organisation that you have daily dealings with. However, we expect you to formally confirm the arrangement in writing at least annually and to keep full, auditable records.

Transfer of sources

- 5.3 You will be required, before lending or letting on hire a high-activity sealed source, to ensure, so far as is reasonably practicable, that the recipient holds an appropriate registration under the Act.
- 5.4 We expect you to obtain written confirmation from the person receiving the source that they hold an appropriate registration (including the registration number for persons in the UK).

Checking of HASS

- 5.5 You will be required to verify at appropriate intervals that each high-activity sealed source and, where relevant, the equipment containing the source, is still present and in apparently good condition at its place of use or storage.

New sources

- 5.6 You will be required to ensure that you do not acquire an article incorporating or consisting of a sealed source that has been manufactured after 31 December 2005 unless:
- it has been given a unique number by the manufacturer or supplier;
 - where practicable, it has been legibly engraved, stamped or otherwise suitably marked with its identification number, the word 'Radioactive' and the ionising radiation symbol; and
 - it is accompanied by written information indicating its identification number, how it is marked, details of its radioactive content, and, where appropriate, the identification number of the source container.

Existing sources

- 5.7 If you hold or acquire an article incorporating or consisting of a sealed source manufactured before 31 December 2005, which has not been given an identification number by the manufacturer or supplier, you will need to allocate such a number;

where practicable, mark the article with the information specified above; and prepare written information as above. When deciding whether it is practicable to mark the article, you should take account of its physical size and shape and the magnitude of any dose that might be incurred by the person doing the marking. In these circumstances, we expect you to mark a source only in such a way that will not damage it (e.g. **not by engraving or stamping**).

Containers

- 5.8 You will also be required to mark any container, in which a sealed source is kept or used, with:
- the container identification number or distinguishing mark;
 - the source identification number;
 - the date of receipt of the source;
 - the name and activity of each radionuclide contained in the source on the day of receipt; and
 - the word 'Radioactive' and the ionising radiation symbol.
- 5.9 For dedicated containers, the marking should be as permanent as possible, e.g. engraved or stamped directly onto the container or onto a metal plate which is screwed or otherwise firmly attached onto the container. For reusable containers (e.g. radiography containers for short-lived Ir-192 sources) the marking that is not source-specific should also be as permanent as possible but, for the source-specific markings, an engraved or stamped metal plate attached to the container with a heavy-duty cable tie (or similar) would be acceptable.

Information

- 5.10 The information that you prepare or that the manufacturer provides must be retained by you for the period that you hold the source and passed on to anyone to whom you transfer the source.
- 5.11 The information may be held as hardcopy or in electronic form, provided that it remains capable of being recovered at any time whilst you hold the source. When transferring a source, we expect you to retain a copy of the information until you are certain that both the source and the information have reached the transferee.

Information to be kept for HASS

- 5.12 For high-activity sealed sources manufactured after 31 December 2005, the information provided by the manufacturer must include photographs of the source and, as appropriate, the source container, transport packaging and any associated equipment. For other high-activity sealed sources, you will be required, where reasonably practicable and where not already available, to take such photographs. **When deciding whether it is reasonably practicable to take your own, you should take account of the magnitude of any radiation dose that might be incurred by the photographer or others involved and make the relevant health, risk and other assessments required by legislation.**
- 5.13 We expect the photographs to be of sufficient quality to be useful in searching for a lost source or in identifying a found source and, preferably, in digital format. They should include an indication of the dimensions of the item. If you hold several sources of the same design type, only one set of photographs is required, provided

that you are able to provide copies to each person to whom you may transfer a source.

- 5.14 For existing sources, you should check whether photographs are available from the original manufacturer or supplier before taking your own. When deciding whether it is reasonably practicable to take your own, you should take account of the magnitude of any radiation dose that might be incurred by the photographer or others involved and make the relevant health, risk and other assessments required by legislation.

Requirements on manufacturers

- 5.15 For consistency with the requirements on users outlined above, if you manufacture an article incorporating or consisting of a sealed source, you will be required to: give it a unique identification number; where practicable, mark it as specified above; produce information as specified above; and provide that information to any person to whom the article is sold or otherwise transferred. If a high-activity sealed source is involved, the information must include photographs.

6 HASS RECORDS AND REPORTS

6.1 General

- 6.1.1 This section of the guidance is intended to help HASS holders make clear, accurate and consistent records, to make the necessary reports to the regulators and therefore to allow us to maintain an accurate national inventory.
- 6.1.2 It describes the implementation in the UK of the requirements of Annex II of the HASS Directive, including which parts are mandatory and which are not. We have changed the format and content from the one set out in Annex II so that your record keeping obligations are as clear and straightforward as we can make them – whilst satisfying the Directive's requirements. We have expanded on those requirements where this seems necessary for clarity and have added a small number of additional pieces of information which we think are necessary for an efficient and effective process.
- 6.1.3 You are required to keep a record for *each* HASS source you hold and report some of the information in that record to us. We do not need to maintain within the national inventory all the information which you need to keep. But, for simplicity and convenience, the Records schedule of your permission¹ should also be used to make reports to us.
- 6.1.4 The Record schedule can be completed by hand. However, electronic versions (in PDF and Excel formats) can be obtained from the UK Regulators' web sites and this can be completed electronically. The SEPA web site address for these forms is:
http://www.sepa.org.uk/radioactivity/excel/hass_record_form.xls
- SEPA cannot yet receive reports electronically as sending them across the internet is not sufficiently secure for this sensitive information. You will need to send a paper copy to the address set out in your registration.
- 6.1.5 It is important that you keep and maintain accurate records. Similarly, it is important that the first report you send to us concerning sources that you have recently received, and any subsequent reports telling us about changes, are made promptly. Your permission confirms the timescales you must work to and the changes we need to know about – and they are summarised below. This will allow us to maintain up-to-date records and will help to ensure that our site regulators have a clear understanding of the sources you hold when they make compliance assessment visits. Importantly, clear and prompt reports will let us track the locations of HASS sources and will help to maintain high standards of source control and management, regulation and environmental protection.
- 6.1.6 The record and reporting contents and formats explained here are essentially common across all the UK 'HASS' regulators. We think that this is important so that HASS holders have a clear understanding of their obligations – irrespective of where they are located. In the early stages of these new arrangements, the UK Regulators have arranged to maintain compatible but separate electronic compilations of the records you send to your local regulator – the national inventory. We will move to a more integrated system, and one which we intend will allow for electronic reporting, in the future. For now, common record formats will allow us to

¹ This generic term is used throughout this section. For most holders this will mean registration or authorisation.

share information – we want to provide for a UK-wide source tracking system - and to migrate records efficiently into the future system we are now developing.

6.2 Formatting

Addresses and dates

6.2.1 Please use the UK standard address format (building number or name & road, town, county or equivalent and postcode). For manufacturers, suppliers or previous users from abroad, add their country.

6.2.2 Please use the date format DD – MM - YYYY.

6.3 Record Contents

6.3.1 Making and amending records

1a. Date record made

1b. Replaces record made on

1c. Amends information about

Most of the information you record about each source will not change during the time you keep that source. But you will need to make new, replacement records and report those changes to us if you:

- apply for and receive a new permission
- change the equipment in which a source is kept
- intend to keep, use or store a source permitted for mobile use at another location for longer than three months
- transfer the source to someone else
- lose, have stolen or recover a source
- need to correct information you have reported before

For clarity, to ensure that a changed record can be clearly linked with the record it replaces and to make plain what changes you are reporting, these record items allow you to confirm when and what changes have been made. At 1.c., your first report about a HASS should be marked as such. Subsequent reports should list the record items now being changed.

1d. Below exemption level on

We need to know when the HASS to which this record relates has decayed below the relevant threshold level. When it has, please complete this section with that date.

1e. Contact name for this record

1f. Contact's telephone number

We may need to speak with you to confirm the detail of your report – if your report is complete and clear, we will not.

6.3.2 Identifying the source

2a. Source identifying number

Source manufacturers should supply customers with a document confirming the identifying number inscribed on the source – and the intended holder should not accept delivery of a source from a source manufacturer, supplier or previous holder without appropriate accompanying documentation confirming this and other information. You should record the identifying number as supplied, and should not try to confirm its accuracy by examination of the source itself.

2b. Name of Source Manufacturer or Supplier

2c. Address of Source Manufacturer or Supplier

If the manufacturer of the source is located outside the European Union, the name and address of the importer or supplier may be recorded instead. The intention is to identify a European 'entry point' at which a source first enters a regulatory and record system maintained within one of the Member States. Its movements, until it leaves that system of control, can then be tracked and transfers reconciled. As yet, no truly international tracking system exists and these arrangements seek to make the most of the current arrangements.

Please add either [M] or [S] to the name recorded at 2b. to confirm whether this is the manufacturer or the supplier. For older sources whose provenance is uncertain, but only after having made reasonable efforts to discover these details, you should enter 'not known'.

2d. Equipment identifying number

Other than during the manufacturing process, sources will usually be installed in some form of equipment, for example a gauge, irradiator, exposure assembly, storage or transport container. It is important to associate each source with the equipment in which it is currently installed. Sources are commonly delivered in a transport container for subsequent installation in a holder's equipment. You should record the identifying number of *your* equipment and amend that record if you later move the source to different equipment. Changes which are of very short duration need not be reported to us.

Some sources are delivered in equipment and may remain there throughout their working life. Equipment should come from its manufacturer, supplier or previous holder with documentation confirming the equipment's identifying number together with confirmation of the source it contains. You should confirm that the equipment identifying number supplied to you matches that marked on the outside of the equipment, and record that number. Holders of sources not installed in equipment should mark this section as 'not applicable'

2e. Equipment manufacturer

2f. Equipment manufacturer's address

You may acquire equipment for which the original manufacturer is not known – in which case you should make reasonable efforts to confirm this information. If necessary, confirm that the manufacturer is 'not known'. If the manufacturer of the equipment is located outside the European Union, the name and address of the importer or supplier may be recorded instead. Where this is the case. Please add [I] or [S] to the name you record at 2e.

2g. Practice

2h. Associated activity

Please complete these sections by confirming the practice and activity for which this source is to be used – consistent with the description used in your application.

6.3.3 Identifying the HASS holder

We need to know clearly who you are. This is so that we can avoid confusion between you and other organisations of similar name – and between different parts of your own organisation, which may hold and manage sources at different locations. We also need to be certain who has responsibility for sending records to us.

3a. Holder's name

Please record the name of your organisation, as used when applying for permission to hold a source of this type.

3b. Holders address

This section should confirm your registered office or principal place of business, not the current location of the source. Please ensure this matches the address on the face of your permission.

3c. Organisation's identifier

Many HASS holders will be businesses who have had to register with Companies House for other purposes. If this applies to you, you should record your Companies House Registration number here.

3d. Type of Holder

Please confirm here whether you are holding *this* source because you are its *manufacturer*, as a *supplier*, as a *user* or because you are storing the source.

6.3.4 Location of HASS

4a. Use

4b. Usual source location

You should record here the address of the premises where you usually keep, use or store the source – which will be the same address as confirmed on the face of your permission. If the source will only be used at these premises, you should record it as *fixed* use at 4a.

4c. Other source location

If this source has been registered under section 10 of the Radioactive Substances Act 1993 you should record this source as for *mobile* use at 4a. We or the police may wish to inspect your arrangements at any of the locations where you keep, use or store the source. But, to allow us to plan our visit programme, we need to know when the source is being kept, used or stored for an extended period at somewhere other than its usual location. If the source is or is likely to be kept at another, single location for longer than three months, please record that address here.

6.3.5 Your Permission

- 5a. *Permission number*
- 5b. *Date it became effective*
- 5c. *Date of expiry*

We of course already know this information but it will be helpful to us and allow you to keep clear records if we ask you to confirm the details here. You should record here the reference number on the face of your permit, together with the date it became effective. In some cases we issue permits which are time-limited and if this applies to your permit you should record the date here.

6.3.6 **Operational information**

This section is to enable you to record source leakage tests - events that are important in demonstrating compliance with the requirements of your permission. We will not record this information. When you amend a record to reflect a recent leakage test you need not report this to us unless you are also telling us of other changes.

Your permission requires you to maintain a record of source movements within your premises and, where the permission allows mobile use, to and from other locations. You will need to keep separate records for those purposes – you should not report those movements.

6.3.7 **Characterising the Source**

The information you provide here will help us to identify sources that are lost or are found and may be important in responding to an incident involving this source.

7a. Radionuclide

Please specify this in the form cobalt – 60, iridium – 192, etc.

- 7b. Date of Manufacture*
- 7c. Activity at that date*
- 7d. Other reference date*
- 7e. Activity at that date*

One purpose of this section is to record a date on which the activity of the source can be confirmed and therefore allow the activity at any later date to be calculated. This may be specified for a reference date which is not necessarily the date of manufacture. But the date of manufacture is of further importance, as it defines the age, rather than activity, of a source – useful where a comparison with its designed working life is of relevance. Therefore, please record all the available information relevant to this section. Please use the standard scientific prefixes and the abbreviation Bq. Recorded activities should be rounded

Further Source Characterisation details

These items are optional - where a source has been manufactured to ISO 2919 most of this information will be contained within the certificate supplied with the source.

7f. Physical & Chemical Characteristics

Where concise information is available, for example 'Cs Cl pellet in double stainless steel capsule', please record it here. Where further information is held, you may wish to retain this separately. Otherwise, please record 'not known'.

7g. Source Type

We are not aware of a comprehensive, industry-wide Type classification scheme which might be adopted here. Where known, please record here the 'model number' assigned by the manufacturer.

7h. Capsule Identification

7i. ISO classification

7j. ANSI Classification

Where this information is available to be recorded, it will be of alphanumeric form and should be recorded as such.

7k. Special Form certificate number

7l Date of expiry of Special Form Certificate

This certificate affects the type of container necessary to transport the source. Where you are able to complete this section we believe that you should do so as it may be of value in some responses to events involving the source.

6.3.8 Receipt of HASS

8a. Date of Receipt of this Source

Please record here when you first received the source or equipment from the manufacturer or your supplier or previous user.

8b. Name of Consignor

8c. Address of Consignor

8d Type of Consignor

Please record the consignor's declared name and address. Also record whether the consignor is the *manufacturer* of this source or equipment, its *supplier* or is a previous *user*. If you have already supplied this information in Section 2 put "As Section 2".

6.3.9 Source Transfer

9a. Date of Transfer of this Source

Where appropriate, please record here the date when you transferred the source or equipment to the management of another organisation.

9b. Name of Recipient

9c. Address of Recipient

9d. Type of Recipient

9e. Recipient's Permission Number

Please record the recipient's declared name and address. And record whether the recipient is a *manufacturer* of HASS or equipment containing HASS, is a *supplier* of HASS or equipment containing HASS, is the next *user* of this source or equipment, is a person permitted for *short-term storage* of waste sources, is someone who will *recycle* the source or is a facility on a nuclear-licensed site for *long-term storage* or *disposal* of waste sources.

We also require you to obtain and record the intended recipient's permission number under which it will keep this source, if that user is within the EU. We will expect to see a complementary report from that new user, if it is in the UK, which will allow us to reconcile our records.

Where you pass a source to a carrier for delivery to the intended recipient, you should *not* report this as a separate, intermediate transfer.

6.3.10 Further Information

This section is only for completion when a relevant event has happened. Conditions of your permission already mean that you must notify us promptly of unusual events of this sort. But you need also to amend your record and report that change to us – a reporting requirement in addition to the existing need for prompt notification

10a Date of Loss

10b Date of Theft

10c Date of recovery

You should record relevant dates. These bare details will allow our records to readily identify sources which at any time are not under management controls. Events like these will mean that you and others will initiate comprehensive investigation, response and recovery arrangements – whose details and conclusions will be kept in separate but associated records which are addressed by separate conditions in your certificate of permission.

APPENDIX 1 – HASS THRESHOLDS AND EXEMPTION LEVELS

Radionuclides in alphabetical order of chemical symbol

Radionuclide	HASS Threshold (Bq)	Exemption Level (Bq)
Actinium (89)		
Ac-228	6E+09	1E+06
Silver (47)		
Ag-105	2E+10	1E+06
Ag-108(a)	7E+09	1E+06
Ag-110m(a)	4E+09	1E+06
Ag-111	2E+10	1E+06
Americium (95)		
Am-241 (e)	1E+11	1E+04
Am-242m (a)	1E+11	1E+04
Am-243 (a)	5E+10	1E+03
Argon (18)		
Ar-37	4E+11	1E+08
Ar-41	3E+09	1E+09
Arsenic (33)		
As-73	4E+11	1E+07
As-74	1E+10	1E+06
As-76	3E+09	1E+05
As-77	2E+11	1E+06
Astatine (85)		
At-211 (a)	2E+11	1E+07
Gold (79)		
Au-198	1E+10	1E+06
Au-199	1E+11	1E+06
Barium (56)		
Ba-131 (a)	2E+10	1E+06
Ba-133 (f)	4E+09	
Ba-140 (a)	5E+09	1E+05
Beryllium (4)		
Be-7	2E+11	1E+07
Bismuth (83)		
Bi-206	3E+09	1E+05
Bi-207	7E+09	1E+06
Bi-210	1E+10	1E+06
Bi-212 (a)	7E+09	1E+05
Berkelium (97)		
Bk-249 (a)	4E+11	1E+06
Bromine (35)		
Br-82	4E+09	1E+06
Carbon (6)		
C-14	4E+11	1E+07
Calcium (20)		
Ca-45	4E+11	1E+07
Ca-47 (a)	3E+10	1E+06
Cadmium (48)		
Cd-109	3E+11	1E+06
Cd-115 (a)	3E+10	1E+06
Cd-115m	5E+09	1E+06
Cerium (58)		
Ce-139	7E+10	1E+06
Ce-141	2E+11	1E+07
Ce-143	9E+09	1E+06
Ce-144 (a)	2E+09	1E+05
Californium (98)		

Radionuclide	HASS Threshold (Bq)	Exemption Level (Bq)
Cf-248	4E+11	1E+04
Cf-249	3E+10	1E+03
Cf-250	2E+11	1E+04
Cf-251	7E+10	1E+03
Cf-252	5E+08	1E+04
Cf-253 (a)	4E+11	1E+05
Cf-254	1E+07	1E+03
Chlorine (96)		
Cl-36	1E+11	1E+06
Cl-38	2E+09	1E+05
Curium (96)		
Cm-242	4E+11	1E+05
Cm-243	9E+10	1E+04
Cm-244	2E+11	1E+04
Cm-245	9E+10	1E+03
Cm-246	9E+10	1E+03
Cm-247 (a)	3E+10	1E+04
Cm-248	2E+08	1E+03
Cobalt (27)		
Co-55	5E+09	1E+06
Co-56	3E+09	1E+05
Co-57	1E+11	1E+06
Co-58	1E+10	1E+06
Co-58m	4E+11	1E+07
Co-60	4E+09	1E+05
Chromium (24)		
Cr-51	3E+11	1E+07
Caesium (55)		
Cs-129	4E+10	1E+05
Cs-131	3E+11	1E+06
Cs-132	1E+10	1E+05
Cs-134	7E+09	1E+04
Cs-134m	4E+11	1E+05
Cs-135	4E+11	1E+07
Cs-136	5E+09	1E+05
Cs-137 (a)	2E+10	1E+04
Copper (29)		
Cu-64	6E+10	1E+06
Dysprosium (66)		
Dy-165	9E+09	1E+06
Dy-166(a)	9E+09	1E+06
Erbium (68)		
Er-169	4E+11	1E+07
Er-171	8E+09	1E+06
Europium (63)		
Eu-152	1E+10	1E+06
Eu-152m	8E+09	1E+06
Eu-154	9E+09	1E+06
Eu-155	2E+11	1E+07
Fluorine (9)		
F-18	1E+10	1E+06
Iron (26)		
Fe-52	3E+09	1E+06
Fe-55	4E+11	1E+06
Fe59	9E+09	1E+06
Gallium (31)		
Ga-72	4E+09	1E+05
Gadolinium (64)		

Radionuclide	HASS Threshold (Bq)	Exemption Level (Bq)
Gd-153	1E+11	1E+07
Gd-159	3E+10	1E+06
Germanium (32)		
Ge-71	4E+11	1E+08
Hafnium (72)		
Hf-181	2E+10	1E+06
Mercury (80)		
Hg-197	2E+11	1E+07
Hg-197m	1E+11	1E+06
Hg-203	5E+10	1E+05
Holmium (67)		
Ho-166	4E+09	1E+05
Iodine (53)		
I-123	6E+10	1E+07
I-125	2E+11	1E+06
I-126	2E+10	1E+06
I-129	Unlimited	1E+05
I-131	3E+10	1E+06
I-132	4E+09	1E+05
I-133	7E+09	1E+06
I-134	3E+09	1E+05
I-135 (a)	6E+09	1E+06
Indium (49)		
In-111	3E+10	1E+06
In-113m	4E+10	1E+06
In-114m (a)	1E+11	1E+06
In-115m	7E+10	1E+06
Iridium (77)		
Ir-190	7E+09	1E+06
Ir-192	1E+10	1E+04
Ir-194	3E+09	1E+05
Potassium (19)		
K-40	9E+09	1E+06
K-42	2E+09	1E+06
K-43	7E+09	1E+06
Krypton (36)		
Kr-81	4E+11	1E+07
Kr-85	1E+11	1E+04
Kr-85m	8E+10	1E+10
Kr-87	2E+09	1E+09
Lanthanum (57)		
La-140	4E+09	1E+05
Lutetium (71)		
Lu-177	3E+11	1E+07
Manganese (25)		
Mn52	3E+09	1E+05
Mn-53	Unlimited	1E+09
Mn-54	1E+10	1E+06
Mn-56	3E+09	1E+05
Molybdenum (42)		
Mo-93	4E+11	1E+08
Mo-99	1E+10	1E+06
Sodium (11)		
Na-22	5E+09	1E+06
Na-24	2E+09	1E+05
Niobium (41)		
Nb-93m	4E+11	1E+07
Nb-94	7E+09	1E+06

Radionuclide	HASS Threshold (Bq)	Exemption Level (Bq)
Nb-95	1E+10	1E+06
Nb-97	9E+09	1E+06
Neodymium (60)		
Nd-147	6E+10	1E+06
Nd-149	6E+09	1E+06
Nickel (28)		
Ni-59	Unlimited	1E+08
Ni-63	4E+11	1E+08
Ni-65	4E+09	1E+06
Neptunium (93)		
Np-237	2E+11	1E+03
Np-239	7E+10	1E+07
Osmium (76)		
Os-185	1E+10	1E+06
Os-191	1E+11	1E+07
Os-191m	4E+11	1E+07
Os-193	2E+10	1E+06
Phosphorous (15)		
P-32	5E+09	1E+05
P-33	4E+11	1E+08
Protactinium (91)		
Pa-230 (a)	2E+10	1E+06
Pa-231	4E+10	1E+03
Pa-233	5E+10	1E+07
Lead (82)		
Pb-203	4E+10	1E+06
Pb-210 (a)	1E+10	1E+04
Pb-212 (a)	7E+09	1E+05
Palladium (46)		
Pd-103 (a)	4E+11	1E+08
Pd-109	2E+10	1E+06
Promethium (61)		
Pm-147	4E+11	1E+07
Pm-149	2E+10	1E+06
Polonium (84)		
Po-210	4E+11	1E+04
Praseodymium (59)		
Pr-142	4E+09	1E+05
Pr-143	3E+10	1E+06
Platinum (78)		
Pt-191	4E+10	1E+06
Pt-193m	4E+11	1E+07
Pt-197	2E+11	1E+06
Pt-197m	1E+11	1E+06
Plutonium (94)		
Pu-236	3E+11	1E+04
Pu-237	2E+11	1E+07
Pu-238 (a)	1E+11	1E+04
Pu-239	1E+11	1E+04
Pu-240	1E+11	1E+03
Pu-241 (a)	4E+11	1E+05
Pu-242	1E+11	1E+04
Pu-244 (a)	4E+09	1E+04
Radium (88)		
Ra-223 (a)	4E+09	1E+05
Ra-224 (a)	4E+09	1E+05
Ra-225 (a)	2E+09	1E+05
Ra-226 (a) (e)	2E+09	1E+04

Radionuclide	HASS Threshold (Bq)	Exemption Level (Bq)
Ra-228	6E+09	1E+05
Rubidium (37)		
Rb-86	5E+09	1E+05
Rhenium (75)		
Re-186	2E+10	1E+06
Re-188	4E+09	1E+05
Rhodium (45)		
Rh-103m	4E+11	1E+08
Rh-105	1E+11	1E+07
Radon (86)		
Rn-222 (a)	3E+09	1E+08
Ruthenium (44)		
Ru-97	5E+10	1E+07
Ru-103 (a)	2E+10	1E+06
Ru-105	1E+10	1E+06
Ru-106(a)	2E+09	1E+05
Sulphur (16)		
S-35	4E+11	1E+08
Antimony (51)		
Sb-122	4E+09	1E+04
Sb-124	6E+09	1E+06
Sb-125	2E+10	1E+06
Scandium (21)		
Sc-46	5E+09	1E+06
Sc-47	1E+11	1E+06
Sc-48	3E+09	1E+05
Selenium (34)		
Se-75	3E+10	1E+06
Silicon (14)		
Si-31	6E+09	1E+06
Samarium (62)		
Sm-151	4E+11	1E+08
Sm-153	9E+10	1E+06
Tin (50)		
Sn-113(a)	4E+10	1E+07
Sn-125	4E+09	1E+05
Strontium (38)		
Sr-85	2E+10	1E+06
Sr-85m	5E+10	1E+07
Sr-87m	3E+10	1E+06
Sr-89	6E+09	1E+06
Sr-90 (a)	3E+09	1E+04
Sr-91 (a)	3E+09	1E+05
Sr-92 (a)	1E+10	1E+06
Tritium (1)		
T(H-3)	4E+11	1E+09
Tantalum (73)		
Ta-182	9E+09	1E+04
Terbium (65)		
Tb-160	1E+10	1E+06
Technetium (43)		
Tc-96	4E+09	1E+06
Tc-96m (a)	4E+09	1E+07
Tc-97	Unlimited	1E+08
Tc-97m	4E+11	1E+07
Tc-99	4E+11	1E+07
Tc-99m	1E+11	1E+07
Tellurium (52)		

Radionuclide	HASS Threshold (Bq)	Exemption Level (Bq)
Te-123m	8E+10	1E+07
Te-125m	2E+11	1E+07
Te-127	2E+11	1E+06
Te-127m (a)	2E+11	1E+07
Te-129	7E+09	1E+06
Te-129m (a)	8E+09	1E+06
Te-131m (a)	7E+09	1E+06
Te-132 (a)	5E+09	1E+07
Thorium (90)		
Th-227	1E+11	1E+04
Th-228 (a)	5E+09	1E+04
Th-229	5E+10	1E+03
Th-230	1E+11	1E+04
Th-231	4E+11	1E+07
Th-232 (in secular equilibrium)	Unlimited	1E+03
Th-234 (a)	3E+09	1E+05
Thallium (81)		
Tl-200	9E+09	1E+06
Tl-201	1E+11	1E+06
Tl-202	2E+10	1E+06
Tl-204	1E+11	1E+04
Thulium (69)		
Tm-170	3E+10	1E+06
Tm-171	4E+11	1E+08
Uranium (92)		
U-230 (fast lung absorption) (a) (b)	4E+11	1E+05
U-230 (medium lung absorption) (a) (c)	4E+11	1E+05
U-230 (slow lung absorption) (a) (d)	3E+11	1E+05
U-232 (fast lung absorption) (b)	4E+11	1E+03
U-232 (medium lung absorption) (c)	4E+11	1E+03
U-232 (slow lung absorption) (d)	1E+11	1E+03
U-233 (all lung absorption types)	4E+11	1E+04
U-234 (all lung absorption types)	4E+11	1E+04
U-235 (all lung absorption types) (a)	Unlimited	1E+04
U-236 (fast lung absorption) (b)	Unlimited	1E+04
U-236 (medium or slow lung absorption) (c) (d)	4E+11	1E+04
U-238 (all lung absorption types)	Unlimited	1E+04
U-238 (in secular equilibrium)	Unlimited	1E+03
Vanadium (23)		
V-48	4E+09	1E+05
Tungsten (74)		
W-181	3E+11	1E+07
W-185	4E+11	1E+07
W-187	2E+10	1E+06
Xenon (54)		
Xe-131m	4E+11	1E+04
Xe-133	2E+11	1E+04
Xe-135	3E+10	1E+10
Yttrium (39)		
Y-90	3E+09	1E+05

Radionuclide	HASS Threshold (Bq)	Exemption Level (Bq)
Y-91	6E+09	1E+06
Y-91m	2E+10	1E+06
Y-92	2E+09	1E+05
Y-93	3E+09	1E+05
Ytterbium (70)		
Yb-169 (f)	3E+09	
Yb-175	3E+11	1E+07
Zinc (30)		
Zn-65	2E+10	1E+06
Zn-69	3E+10	1E+06
Zn-69m (a)	3E+10	1E+06
Zirconium (40)		
Zr-93	Unlimited	1E+07
Zr-95 (a)	2E+10	1E+06
Zr-97 (a)	4E+09	1E+05

- (a) Threshold refers to activity of parent nuclide but separate consideration of daughter nuclides with half-lives less than 10 days is not required.
- (b) These values apply only to compounds of uranium that take the chemical form of UF₆, UO₂F₂ and UO₂(NO₃)₂ in both normal and accident conditions of transport.
- (c) These values apply only to compounds of uranium that take the chemical form of UO₃, UF₄, UCl₄ and hexavalent compounds in both normal and accident conditions of transport.
- (d) These values apply to all compounds of uranium other than those specified in (b) and (c) above.
- (e) Includes neutron sources with beryllium.
- (f) HASS Threshold value taken from IAEA TS-R-1 (ST-1, revised) 2000. No Exemption Level is given in the BSS.

Thresholds taken from the HASS Directive are shown in red in the table.

APPENDIX 2 – D VALUES

Radionuclide	Symbol	'D' Value GBq	Radionuclide	Symbol	'D' Value GBq
Americium 241	Am-241	60	Americium 243	Am-243	200
Antimony 124	Sb-124	40	Antimony 125	Sb-125	200
Argon 41	Ar-41	50	Arsenic 76	As-76	200
Astatine 211	At-211	500	Barium 133	Ba-133	200
Barium 137m	Ba-137m	10 000	Beryllium 7	Be-7	1 000
Bismuth 210	Bi-210	8 000	Bromine 76	Br-76	30
Bromine 77	Br-77	200	Bromine 82	Br-82	30
Cadmium 109	Cd-109	20 000	Caesium 134	Cs-134	40
Caesium 135	Cs-135	Unlimited	Caesium 137	Cs-137	100
Calcium 41	Ca-41	Unlimited	Calcium 45	Ca-45	100 000
Californium 252	Cf-252	20	Carbon 11	C-11	60
Carbon 14	C-14	50 000	Cerium 141	Ce-141	1 000
Cerium 144	Ce-144	900	Chlorine 36	Cl-36	20 000
Chromium 51	Cr-51	2 000	Cobalt 55	Co-55	30
Cobalt 56	Co-56	20	Cobalt 57	Co-57	700
Cobalt 58	Co-58	70	Cobalt 60	Co-60	30
Copper 61	Cu-61	10 000	Copper 64	Cu-64	300
Copper 67	Cu-67	700	Curium 242	Cm-242	40
Curium 243	Cm-243	200	Curium 244	Cm-244	50
Erbium 171	Er-171	200	Europium 152	Eu-152	60
Europium 154	Eu-154	60	Fluorine 18	F-18	60
Gadolinium 148	Gd-148	400	Gadolinium 153	Gd-153	1 000
Gallium 67	Ga-67	500	Gallium 68	Ga-68	70
Germanium 68	Ge-68	70	Gold 198	Au-198	200
Holmium 166	Ho-166	2 000	Indium 111	In-111	200
Indium 113m	In-113m	300	Iodine 120	I-120	10 000
Iodine 123	I-123	500	Iodine 124	I-124	60
Iodine 125	I-125	200	Iodine 129	I-129	Unlimited
Iodine 131	I-131	200	Iridium 192	Ir-192	80
Iron 52	Fe-52	20	Iron 55	Fe-55	800 000
Iron 59	Fe-59	60	Krypton 79	Kr-79	1 000
Krypton 81	Kr-81	30 000	Krypton 85	Kr-85	30 000
Lanthanum 140	La-140	30	Lead 210	Pb-210	300
Manganese 52	Mn-52	20	Manganese 54	Mn-54	80
Manganese 56	Mn-56	40	Mercury 203	Hg-203	300
Molybdenum 99	Mo-99	300	Neptunium 237	Np-237	70
Nickel 59	Ni-59	1 000 000	Nickel 63	Ni-63	60 000
Nitrogen 13	N-13	60	Oxygen 15	O-15	60
Palladium 103	Pd-103	90 000	Phosphorus 32	P-32	10 000
Phosphorus 33	P-33	200 000	Plutonium 238	Pu-238	60
Plutonium 239	Pu-239	60	Plutonium 240	Pu-240	60
Plutonium 241	Pu-241	3 000	Plutonium 242	Pu-242	70
Polonium 210	Po-210	60			
Potassium 40	K-40	Unlimited	Potassium 42	K-42	200
Protactinium 231	Pa-231	60	Promethium 147	Pm-147	40 000
Radium 224	Ra-224	50	Radium 226	Ra-226	40
Radium 228	Ra-228	30	Rhenium 186	Re-186	4 000
Rhenium 188	Re-188	1 000	Rubidium 81	Rb-81	100
Rubidium 81m	Rb-81m	10 000	Rubidium 82	Rb-82	10 000
Rubidium 82m	Rb-82m	10 000	Rubidium 84	Rb-84	70
Rubidium 86	Rb-86	700	Ruthenium 103	Ru-103	100
Ruthenium 106	Ru-106	300	Samarium 151	Sm-151	500 000
Samarium 153	Sm-153	2 000	Scandium 46	Sc-46	30
Scandium 47	Sc-47	700	Selenium 75	Se-75	200

Radionuclide	Symbol	'D' Value GBq	Radionuclide	Symbol	'D' Value GBq
Silver 110m	Ag-110m	20	Sodium 22	Na-22	30
Sodium 24	Na-24	20	Strontium 83	Sr-83	1 000
Strontium 85	Sr-85	100	Strontium 89	Sr-89	20 000
Strontium 90	Sr-90	1 000	Sulphur 35	S-35	60 000
Tantalum 182	Ta-182	60	Technetium 94	Tc-94	1 000
Technetium 99m	Tc-99m	700	Thallium 201	Tl-201	1 000
Thallium 204	Tl-204	20 000	Thorium natural	Th-nat	Unlimited
Thorium 228	Th-228	40	Thorium 229	Th-229	10
Thorium 230	Th-230	70	Thorium 232	Th-232	Unlimited
Thulium 170	Tm-170	20 000	Tin 113	Sn-113	300
Tin 117m	Sn-117m	500	Tin 119	Sn-119	100
Tin 121	Sn-121	20 000	Tin 121m	Sn-121m	70 000
Tin 125	Sn-125	100	Tritium	H-3	2 000 000
Uranium depleted	U Dep DU	Unlimited	Uranium natural	U Nat	Unlimited
Vanadium 48	V-48	20	Xenon 133	Xe-133	3 000
Ytterbium 169	Yb-169	300	Ytterbium 175	Yb-175	2 000
Yttrium 86	Y-86	1 000	Yttrium 88	Y-88	30
Yttrium 90	Y-90	5 000	Zinc 62	Zn-62	1 000
Zinc 65	Zn-65	100	Zirconium 89	Zr-89	1 000
Zirconium 95	Zr-95	40			

APPENDIX 3 – GLOSSARY OF TERMS USED IN THIS GUIDANCE

ANSI	American National Standards Institute
Bq	Becquerel
BSS Directive	Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation
CTSA	Counter terrorism security adviser
Defra	Department for the environment, food and rural affairs
GTLD	Gaseous tritium light device
HASS	High-activity sealed radioactive source
HASS Directive	Council Directive 2003/122/Euratom on the control of high-activity sealed radioactive sources and orphan sources
HASS Regulations	The High-activity Sealed Radioactive Sources and Orphan Sources Regulations 2005 (SI 2005 No 2686)
HSE	Health and Safety Executive
IAEA	International Atomic Energy Agency
IRR99	The Ionising Radiations Regulations 1999
ISO	International Standards Organization
NaCTSO	National Counter Terrorism Security Office
NSAC	National Security Advice Centre (now the Centre for the Protection of National Infrastructure – CPNI)
RSA93	The Radioactive Substances Act 1993
SEPA	Scottish Environment Protection Agency