

# How to apply for an environmental permit Part RSR-B2 – New or varied bespoke radioactive substances activity permit (sealed sources)



## Guidance notes

### Please read these guidance notes carefully before you fill in the form.

Complete part RSR-B2 if you are applying for a new bespoke permit for a radioactive substances activity involving sealed sources and/or waste sealed sources. If you want to make on-site disposals of solid waste to land, also fill in part RSR-B5.

### Only fill in the sections relevant to your application. If you are applying to vary (change) an existing permit for sealed sources you should only fill in the sections which cover the changes you are seeking.

Do not complete part RSR-B2 if your maximum holding of sealed sources is security category 5 and you can comply with the relevant standard rules. Instead use part RSR-B1 and the guidance for that (which explains what we mean by security category 5). You do not need a permit for the use of sources which are within the scope of an exemption order, provided you can comply with all of the conditions in such an order.

We have also published additional detailed guidance on radioactive substances regulation in our 'How to Comply' documents.

Where you see the term 'document reference' on the form, give the document references here and send the documents with the application form when you've completed it.

### Contents

- 1 Other permits and applications
  - 2 About the activities involving sealed sources
  - 3 Using sealed sources on the premises
  - 4 Radioactive material stored in transit
  - 5 Accumulation of waste sealed sources
  - 6 Disposal of waste sealed sources
  - 7 Receipt of waste sealed sources
  - 8 Security of sources
- Annex D-values

Once details of sealed sources are put onto part RSR-B2, the form becomes subject to national security restrictions at an 'Official Sensitive' level.

The marking 'Official Sensitive' on a completed application form is in accordance with the Government Protective Marking Scheme. The unauthorised disclosure of the information it contains could facilitate the commission of serious crime – in particular by terrorists. It is for use only by those people within your organisation who need reasonable access to it, to ensure compliance with the conditions of the permit, and trusted contacts who advise you – such as your Radiation Protection Adviser/Radioactive Waste Adviser.

- Do not copy it to other parties without consulting the Environment Agency.
- Lock it in a secure cabinet or container when it is not in use.
- Make those who access it aware of the marking and the need to protect the information from unauthorised disclosure and loss.
- If you move it around, use a sealed envelope and do not mark the envelope 'Official Sensitive'.
- If you post it, use 'Royal Mail special delivery guaranteed'.
- You should safeguard electronic copies of the data against unauthorised access. You should not email it.

## 1 Other permits and applications

**1a** Is this an application for a new permit or a variation? Part RSR-B2 is used for new permits and variations to existing permits. In either case only fill in the sections for which you are proposing new or changed information.

**1b** Have you recently made, or do you intend to make, an application for an environmental permit to operate a regulated facility, other than for a radioactive substances activity, on the premises? This will enable us to coordinate our determination work.

## 2 About the activities involving sealed sources

**2a** Tick the relevant boxes to show which radioactive substances activities you are applying for.

If you wish to be able to receive radioactive waste, you must apply to do so, even if you only intend to do this as a result of your participation in the National Arrangements for Incidents Involving Radioactivity (NAIR) or RADS SAFE schemes.

You should not apply to accumulate or dispose of radioactive waste if you can do so under the terms of an exemption. Waste high-activity sealed sources (HASS) or sources of similar potential hazard are no longer exempt from permitting for accumulation and so must be permitted for this.

**2b** Describe your reasons for keeping, using, accumulating or disposing of sources. We need to have an overall description of your work with sources so that we can judge whether your proposals are reasonable.

**2c** If you are applying for a variation describe the changes and reasons for them. We need to have an overall description of changes so that we can judge whether your proposals are reasonable.

**2d** Describe how and why you intend to use the sources. We need to know:

- how you intend to use the sources;
- why you need the sources;
- why you cannot use sources of lower activity.

**2e** Where will you store the sources when they are not in use?

Give general details of the building, room, security measures, fire alarm systems and proximity of inflammable materials, etc. Do not supply details of security arrangements.

### **3 Using sealed sources on the premises**

**3a to 3d** If you are the licensee of a nuclear site you should not fill in this part of the form for sources used only on the licensed site, as the Regulations do not require permitting for the keeping or use of sources on nuclear sites by licensees. A nuclear site is one specified under the Nuclear Installations Act.

Do not include sources kept in packages which are stored in the course of a journey – you should cover these in section 5.

List all sealed sources that you want permitted for these premises. List HASS and other sources separately in the relevant tables. You should state whether sources are mobile radioactive apparatus.

Specify sources:

- by radionuclide or group in order, starting with the highest-activity material and finishing with the lowest-activity-material;
- excluding exempt sources.

If you intend to hold several sources of the same radionuclide with approximately the same activity you can describe them together in a single line in the table. Refer to the maximum activity of an individual source. For example, caesium-137, three sources, maximum activity for each 100 megabecquerels, would cover sources of 75, 85 and 95 megabecquerels activity.

You should not include radionuclides that are present as a result of radioactive decay of the listed radionuclides.

You may apply for the maximum number of sources that you reasonably expect to hold in the foreseeable future (i.e. the next 1–2 years).

If you want to hold large numbers of relatively small sources, you can opt to register them as a group of ‘total radionuclides’. However, it will help us process your application if you provide as much information as possible about the proposed individual radionuclides you intend to use. If you do this the maximum activity of any single source must not exceed the HASS threshold (see Environment Agency HASS guidance) for that radionuclide. We will not issue permits for groups other than ‘total radionuclides’ or ‘any sources which are individually and in aggregate within security category 5’. ‘Total’ means not specified separately.

#### **Using becquerels**

You should list activity in SI units (becquerels). Write the prefix kilo-, mega-, giga-, tera- or peta- clearly in full to minimise the risk of error.

#### **Rounding up substances of nominal activity**

If you use radioactive substances of nominal activity (particularly with radionuclides of short half-life), you may round up the figure to ensure you do not risk exceeding your permitted limit (even temporarily). If you do round up a figure, please make sure you say how and where you have done this.

#### **Depleted uranium**

You should be aware that some sources may be supplied in depleted uranium containers. Where necessary you should give the masses for depleted uranium in kilograms (for example, in source containers, counterbalance weights).

Guidance on how to tell if a source is a HASS is given in the Annex to this guidance. Note the definition of HASS has changed from that used up to May 2018.

**3e** Confirm whether you have read the requirements of the Defra guidance on financial and other provision for each high-activity source.

‘Financial provision’ is the term we use for the arrangements (which can be non-financial) that holders of HASS must make for the safe management of HASS when they become disused, including when the holder becomes insolvent or goes out of business. You should read the guidance on the government website:

<https://www.gov.uk/government/publications/high-activity-sealed-radioactive-sources-and-orphan-sources-directive>.

We can supply more details of ways you may do this on request.

**3f** Which mechanism are you proposing to use for this purpose?

You should tell us which of the methods in the guidance (or a different one) you are using. If a bond or other financial instrument payable to the Environment Agency is to be used, the original document should be included with the application.

**3g** Specify which of the following arrangements you have in place for the safe management of HASS when you no longer have any use for them.

You should tell us which disposal route you intend to use for disused HASS.

**3h** Do you manufacture HASS?

You should tick 'Yes' even if manufacture is incidental to your main practice.

## **4 Radioactive material stored in transit**

Answer this section only if you are applying for an activity which involves short-term storage only of unopened packages containing radioactive material or waste for which you need a permit. Most such work is exempt from permitting. Storage up to 14 days is exempt.

**4a** Confirm whether you intend to store radioactive packages in transit.

Storage in transit is when unopened packages containing radioactivity are held temporarily between stages of a journey; for example, while awaiting road transport after unloading from an aircraft.

**We need to understand what prevents your operations from being exempt.**

## **5 Accumulation of waste sealed sources**

Waste sources which are HASS or of similar potential hazard are no longer exempt from the need for permitting while being accumulated. In order to ensure that HASS and similar sources are permitted when they become waste, we will permit them for accumulation at the same time as we permit them for use. Category 5 sources are exempt from permitting for accumulation subject to the exemption conditions.

**5a** Enclose your assessment of how you plan to use the 'best available techniques' to minimise the period over which radioactive waste is accumulated.

**5b/5c** Give details of waste sources that you need to accumulate for longer than 26 weeks. We will permit all sources held to be accumulated for up to 26 weeks unless specified here. You should only include sources that you cannot dispose of within 26 weeks. You will need to explain why you need longer in question 5c.

## **6 Disposal of waste sealed sources**

**6a/6b** How do you plan to dispose of waste sealed sources?

You will need to explain whether sources are to be returned to the supplier, a specialist radioactive waste contractor, a nuclear site, or other route. Any person receiving permitted sources will need to have a suitable permit. You will need to explain why your sources cannot be disposed of using the exemption.

**6c** Provide the following details of waste sealed sources you plan to dispose of.

Give the details requested.

**6d** Confirm whether you have contracts in place for another organisation to receive all of your waste HASS.

The operator consigning waste must have in place contracts with a waste disposal/storage company or companies to dispose of all of the waste sealed sources to be permitted. (It is acceptable to establish a contract or contracts with a waste disposal company. It is not necessary to specify any particular site which will receive the waste.) These contracts and transfer records should be available for inspection by the Environment Agency, either at the application stage or later.

You should provide evidence that you have contractual arrangements in place to do this or, where disposal may not take place for some time, that such contractual arrangements can be put in place. This may take the form of a letter of agreement in principle from a waste recipient to accept waste.

## **7 Receipt of waste sealed sources**

**7a** Do you have an emergency role under the National Arrangements for Incidents Involving Radioactivity (NAIR) or RADS SAFE schemes?

You can find more information about these schemes by searching the internet.

**7b** Do you want us to include the standard conditions for organisations taking part in NAIR or RADS SAFE on this permit?

If you are a NAIR or RADS SAFE respondent we can include in your permit the conditions which would enable you to accumulate and dispose of radioactive waste collected as part of the scheme.

**7c** Provide details of the origin, nature and quantity of waste sealed sources to be accepted onto the premises, and how you will manage and dispose of them.

Give the requested details of your plans to receive waste sealed sources. You will not be permitted to receive them unless we have the appropriate details and they are included on your permit.

Do not answer this question if the only radioactive waste that you will receive from elsewhere is that which may arise as a result of your participation in NAIR or RADS SAFE.

## 8 Security of sources

You do not need to complete this section if the sources stay on a nuclear licensed site because this is regulated by the Office for Nuclear Regulation (ONR). If the sources are mobile and based on a nuclear site (i.e. are capable of being used off the nuclear site), then the section should be completed in respect of security measures required off the site.

The Environment Agency has regulatory powers over the protective security of certain sealed sources. Consideration of security is required for high-activity sealed sources and sources which, in the opinion of the Environment Agency, are of a similar level of potential hazard to that arising from high-activity sources.

A high-activity sealed source (HASS) is a sealed source for which the activity of the contained radionuclide is equal to or exceeds the relevant activity value laid down in Annex III of the 2013 Basic Safety Standards Directive (<http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L:2014:013:FULL&from=EN>). For convenience a list of the values (referred to as D-values) for many radionuclides is given in the Annex to this guidance. If there is any doubt or radionuclides are not listed consult Annex III as above.

It is our opinion that any source, or aggregation of sources in a single premises, falling in any of source categories 1 to 4 in the scheme set out in the Security Requirements Document ('Security Requirements for Radioactive Sources', NaCTSO, April 2011), constitutes a similar level of potential hazard to a HASS. All users, applicants and other interested parties who need to see the Security Requirements document should ask their police force Counter-Terrorism Security Adviser (CTSA) for a copy.

Do not list category 5 sources here unless a number of them add up to category 4 when taken together.

You can discuss source security matters with your CTSA before completing an application form if you desire. If you may need to spend significant resources on security matters, you should contact your CTSA before applying.

Where sources are not considered to constitute a similar level of potential hazard (i.e. category 5 sources) as that from high-activity sources, we will be requiring users to take simple precautions to protect radioactive sources.

**8a** Which police force area are the premises in?

We need this so that we can ask the CTSA for advice on security.

**8b** Provide the following details of all the sealed sources (kept or used, in mobile radioactive apparatus or waste) that you will have at any time.

This enables you (and us) to decide what security level is appropriate for the sources on the premises.

**8c** Do you have a copy of 'Security Requirements for Radioactive Sources', NaCTSO, April 2011?

This document helps you to decide the source categories and security levels and is available from your local police CTSA.

**8d** If you think your premises are in security levels A, B or C, have you met all of the conditions of the Security Requirements Document for the security level your premises are in?

You will need to have done this before you can hold sources.

## Annex

### D-values

Radionuclide	Symbol	D-value GBq	Radionuclide	Symbol	D-value GBq
Americium 241[1]	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

Radionuclide	Symbol	D-value GBq	Radionuclide	Symbol	D-value GBq
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[1]	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	Silver 110m	Ag-110m	20

Radionuclide	Symbol	D-value GBq	Radionuclide	Symbol	D-value GBq
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 119m	Sn-119m	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