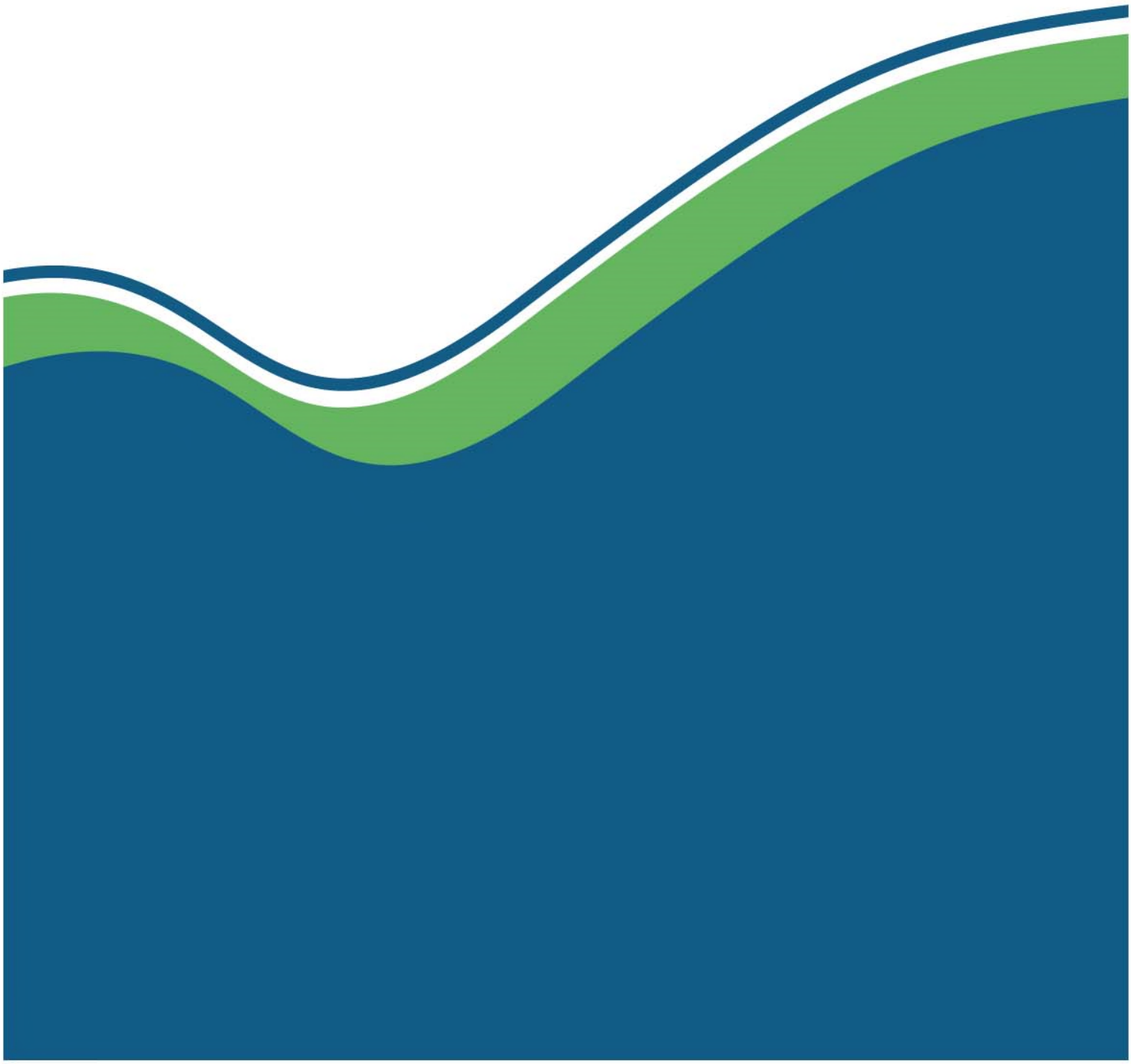
Scottish Pollutant Release Inventory Reporting

SPRI Radioactive Substances Guidance

2014



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1 INTRODUCTION AND SCOPE

1.1 The Scottish Pollutant Release Inventory (SPRI) is a publicly accessible electronic database of releases from industrial and other activities within Scotland. The inventory is compiled by SEPA on behalf of the Scottish Government from annual operator data returns submitted in response to a legal Notice.

1.2 In order to reduce the administrative burden on those we regulate, SEPA will now accept the SPRI return as satisfying the Authorisation requirement to make an annual waste return. This will only apply to those Authorisations with an annual return requirement. Those Authorisation Holders with requirements to make returns to SEPA at other frequencies, or who are required to report disposals other than discharges to the environment, will need to continue with existing arrangements. Authorisation Holders who are required to make separate submissions or who wish to continue to make separate submissions of their annual waste return may continue to do so but will also be required to make a SPRI return.

2 PURPOSE OF THIS GUIDANCE

2.1 This guidance is intended to assist Authorisation Holders authorised under the Radioactive Substances Act 1993 to submit their annual emission return to SPRI. More general guidance on submitting an SPRI return can be obtained from the SEPA website.

3 IMPORTANT POINTS FOR OPERATORS TO NOTE

3.1 SPRI Returns should only be made via the official internet-based electronic form or the appropriate paper form available from SEPA on request.

3.2 Please do not use the Schedule of the Notice to return requested information.

3.3 The electronic form can be accessed at the SEPA website. The user name and password you have been issued will allow you to log onto the site and complete the form. Where you have reported in previous years your log-in details remain unchanged.

If you require assistance please e-mail SPRIAdministration@sepa.org.uk

3.4 Please ensure that you complete all the mandatory sections of the form.

3.5 You do not need to give information on all the radionuclides listed in the Notice; only those radionuclides or groups of radionuclides which appear in your Authorisation (i.e. those radionuclides or groups of radionuclides which are limited in the Authorisation).

3.6 All submissions should be made by the dates contained within the Notice you have been sent.

4 CHANGES BETWEEN REPORTING YEARS – WHAT'S NEW?

4.1 For 2014 there have been no changes from the 2013 guidance document

5 GUIDANCE ON COMPLETION OF THE FORM

Please read the notes on the Schedule to the Notice in conjunction with this guidance. You may also want to consult the Operator Walk-through document which gives full details on how to use the electronic operator system available at the SEPA website.

5.1 Completing Section A – Address and contact information.

All fields within this section must be completed.

5.1.1 Site details

In this section please complete the details for the site to which your Authorisation relates. Where relevant, please use the same details as are set out in your Authorisation.

5.1.2 Company Name and Address Details
Often the registered company details may be similar to those for the site, but for some Authorisation Holders the registered company name and address differ. As with the site details, please give the same details as are recorded in your Authorisation where applicable.

5.1.3 Contact Details
This refers to the name and contact details of the person completing the form.

5.2 Completing Section B – Economic activity and process information.

5.2.1 All sections under this heading must be completed. **Please note**: that you cannot type directly into the box within the electronic form, choices must be made from the dropdown list or search menu.

5.2.2 Main Economic Activity
In this section identify the main economic activity of your site. This is done by assigning the appropriate UK Standard Industrial Classification of Economic Activities code (UKSIC) code. A comprehensive list of SIC codes are given on the SEPA website.

5.2.3 To select the correct SIC code:

1. Identify the sector that is most relevant to your site.
2. Choose the SIC code that best describes the main economic activity of your site.
3. If using the electronic reporting form the description column will be populated automatically. If you do not agree with this description then use the search box to choose an appropriate code.

5.2.4 Primary Activity at Installation
This is the main activity undertaken at the site and should be either

PRTR Code	Activity Description
10(a)	Activities at Premises with Nuclear Authorisation

Or

PRTR Code	Activity Description
10(b)	Activities at Premises with Non-Nuclear Authorisation

5.3 Completing Section C – Radionuclide releases to air for premises with nuclear and non-nuclear authorisations.

PLEASE NOTE THAT ALL REPORTING THRESHOLDS HAVE NOW BEEN SET TO ZERO, AND ALL AUTHORISED EMISSIONS NOW REQUIRE TO BE REPORTED.

5.3.1 In this section you are asked to tell us about your releases to the atmosphere during the reporting year. Releases to air mean those releases from atmospheric discharge points specified in the Authorisation (including incinerator stacks).

5.3.2 **All Authorisation Holders should review the full radionuclide list and ONLY report against those that appear in the Authorisation**.

5.3.3 All values must be reported in megabecquerels (MBq) for SPRI, even if the Authorisation limits are set in different units (e.g. kBq, GBq, TBq, etc.). Care must be taken if units must be converted into MBq to ensure accuracy.

5.3.4 You must choose either '**Above Reporting Threshold'** (**ART**) or '**No Longer Applicable'**.
There is no longer any option to select 'Below Reporting Threshold'.

5.3.5 If a pollutant is listed in your authorisation but is not released during the reporting year you must select ART, enter a value of zero and enter the phrase 'This pollutant was not released during reporting year' in the method description field.

5.3.6 **ART** – where a radionuclide is released the amount released should be reported as radioactivity in units of MBq. SEPA recommends that three significant figures are used when reporting the quantity of activity released. When rounding figures to achieve three significant figures, round up from the

number 5 or above, and down from the figure 4 or below (e.g. 1.555 would be rounded up to 1.56 and 1.554 would be rounded down to 1.55). If you enter 'ART' within Section C you are also required to enter the measurement type, the method and a method description of how the value was determined (see Section 6).

Please Note: If you have any non-radioactive pollutant emission limits specified in your Authorisation or if you have any additional permits issued by SEPA (i.e. PPC permits, CAR licences) you should also include these pollutants before submitting your return.

5.4 Completing Section C – Radionuclide releases to water for premises with nuclear and non-nuclear authorisations.

PLEASE NOTE THAT ALL REPORTING THRESHOLDS HAVE NOW BEEN SET TO ZERO, AND ALL AUTHORISED EMISSIONS NOW REQUIRE TO BE REPORTED.

5.4.1 In this section you are asked to tell us about your releases directly to the water environment. The "water environment" means all surface water, groundwater and wetlands which are defined in Section 3 of the Water Environment and Water Services (Scotland) Act 2003, which has been reproduced below.

5.4.2 **All Authorisation Holders should review the full radionuclide list and ONLY report against those that appear in the Authorisation**.

5.4.3 All values must be reported in megabecquerels (MBq) for SPRI, even if the Authorisation limits are set in different units (e.g. kBq, GBq, TBq, etc.). Care must be taken if units must be converted into MBq to ensure accuracy.

5.4.4 You must choose either 'Above Reporting Threshold' (**ART**) or '**No Longer Applicable'**. There is no longer any option to be "Below Reporting Threshold".

5.4.5 If a pollutant is listed in your authorisation but is not released during the reporting year you must select ART, enter a value of zero and enter the phrase 'This pollutant was not released during reporting year' in the method description field.

5.4.6 **ART** – where a radionuclide is released the amount released should be reported as radioactivity in units of MBq. SEPA recommends that three significant figures are used when reporting the quantity of activity released. See previous guidance on rounding up of data (Section 5.3.6).

Please Note: If you have any non-radioactive pollutant emission limits specified in your Authorisation or if you have any additional permits issued by SEPA (i.e. PPC permits, CAR licences) you should also include these pollutants before submitting your return.

"Surface water" means inland water (other than groundwater), transitional water and coastal water.

"Groundwater" means water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"Wetland" means an area of ground the ecological, chemical and hydrological characteristics of which are attributable to frequent inundation or saturation by water and which is directly dependent, with regard to its water needs, on a body of groundwater or a body of surface water.

"Inland water" means:
(a) all standing or flowing water on the surface of the land (other than transitional water), and
(b) all groundwater,
within the landward limits of coastal water.

"Transitional water" means water (other than groundwater) in the vicinity of river mouths which is partly saline in character as a result of its proximity to coastal water but which is substantially influenced by freshwater flows.

"Coastal water" means water (other than groundwater) within the area extending landward from the 3 mile limit up to the limit of the highest tide or, where appropriate, the seaward limits of any bodies of transitional water, but does not include any water beyond the seaward limits of the territorial sea of the United Kingdom adjacent to Scotland.

"The 3 mile limit" means the limit consisting of a line every point of which is at a distance of 3 miles on the seaward side from the nearest point of the baseline from which the breadth of the territorial sea of the United Kingdom adjacent to Scotland is measured; and "miles" means international nautical miles of 1,852 metres.

5.5 Section C – Radionuclide releases to land

5.5.1 This section is not applicable for radioactive substances.

5.6 Completing Section C – Radionuclide releases to wastewater for premises with nuclear and non-nuclear authorisations

PLEASE NOTE THAT ALL REPORTING THRESHOLDS HAVE NOW BEEN SET TO ZERO, AND ALL AUTHORISED EMISSIONS NOW REQUIRE TO BE REPORTED.

5.6.1 In this section you are asked to tell us about your releases to wastewaters being removed from the site by sewer during the reporting year. Discharges to sewer are those for which the non-radioactive component is usually controlled under Part II of the Sewerage (Scotland) Act 1968 which details requirements for the consent of the sewerage undertaker. Such consent is made in the form of a 'trade effluent discharge consent' issued by the undertaker upon application by the occupier of the trade premises.

5.6.2 **All Authorisation Holders should review the full radionuclide list and ONLY report against those that appear in the Authorisation**.

5.6.3 All values must be reported in megabecquerels (MBq) for SPRI, even if the Authorisation limits are set in different units (e.g. kBq, GBq, TBq, etc). Care must be taken if units must be converted into MBq to ensure accuracy.

5.6.4 You must choose either 'Above Reporting Threshold' (**ART**) or '**No Longer Applicable'**. There is no longer any option to be "Below Reporting Threshold".

5.6.5 If a pollutant is listed in your authorisation but is not released during the reporting year you must select ART, enter a value of Zero and enter the phrase 'This pollutant was not released during reporting year' in the method description field.

5.6.6 **ART** – where a radionuclide is released the amount released should be reported as radioactivity in units of MBq. SEPA recommends that three significant figures are used when reporting the quantity of activity released). See previous guidance on rounding up of data (Section 5.3.6).

Please Note: If you have any non-radioactive pollutant emission limits specified in your Authorisation or if you have any additional permits issued by SEPA (i.e. PPC permits, CAR licences) you should also include these pollutants before submitting your return.

5.7 Section D – Off-site transfer of waste.

5.7.1 This section is not applicable for radioactive substances.

5.8 Section E – Waste inputs.

5.8.1 This section is not applicable for radioactive substances.

5.9 Section F – Large Combustion Plant Directive (LCPD).

5.9.1 This section is not applicable for radioactive substances.

5.10 Section G – Voluntary information

5.10.1 The completion of this part of the return is voluntary. Where there has been a large variation in emissions from the previous year to the present, due to things such as a planned shut-down of all or part of the process, it may be prudent to enter details within Section G's first box.

6 GUIDANCE NOTES

Please Note: From 2010 sites with Nuclear Authorisations should also refer to the new guidance document "Radiological Monitoring Technical Guidance Note 1" as the Best Practicable Means (BPM) for reporting discharges which can be found on the SEPA website.

6.1 Accidental emissions

6.1.1 These are unplanned and unauthorised releases of a particular radionuclide or radionuclides to the environment. They may be caused by an emergency, poor operation, accident or plant failure. They should be reported as a value – the determined release value must be entered into the '**Accidental emissions'** box and a description of the cause of the accidental release must be provided.

6.2 Measurement type

6.2.1 **Measurement, calculation and estimation**
The reporting form requires that the Authorisation Holder state how each release has been primarily determined. There are three ways of determining the release:

Measurement (M) – releases derived from direct monitoring results, based on actual monitoring of a radionuclide via a given discharge route.

Calculation (C) – releases based on calculation from plant/operation specific data.

Estimation (E) – releases based on best estimates.

SEPA does not consider that there is a hierarchy in terms of the quality of data obtained by measurement, calculation or estimation.

6.2.2 **Measurement** includes:

- Spot sampling and analysis of effluent held in a tank prior to discharge (additional calculations are needed to convert the results of measurements into annual release data).
- Flow proportional sampling of effluent during discharge and subsequent analysis.

6.2.3 **Calculation** includes:

- Derivation of total activity which has been released to sewer from records of the volumes of laboratory solutions and their reference activity concentration which have been disposed of to drain via a laboratory sink.
- Assessment of the releases to sewer from the recorded activity of radio-pharmaceutical products which have been administered to patients, combined with agreed excretion rates for these products from patients. These agreed rates are set out in RASPAN 2010-02 Medical Waste Disposal Factors, which can be obtained from SEPA.
- Use of agreed radionuclide-specific incinerator partitioning factors along with data on input activities to the incinerator which have been derived through calculation or measurement. In this case, measurement means sampling and analysis of the waste to be incinerated and calculation means, for example, recorded volumes and activity concentrations of waste radiochemical products.
- Calculation of total alpha and total beta/gamma releases by summation of the individual releases of radionuclides, where the majority of these releases have been determined by measurement or calculation.

6.2.4 **Estimation** includes:

- Derivation of releases to air and sewer based on previous experience of the likely proportion of activity released to air and sewer from a particular type of experiment and the number of such experiments performed in a year.
- Use of incinerator partitioning factors along with data on input activities to the incinerator which have been derived through estimation. Estimation in this case includes bags of clinical waste which have been monitored with portable radiological instruments and activity content assigned on the basis of conversion factors from counts per second or dose rate to activity.
- Derivation of total alpha and total beta/gamma releases by summation of the individual releases of radionuclides, where the majority of these releases have been determined by estimation. Where a key part of the derivation of a release is based on estimation, then the release should be considered to have been estimated, whether or not, measurement and calculation have also been used.

6.3 Method

6.3.1 The equivalent methodologies in Table 1 (below) for **PER, NRB, ALT, CRM, MAB** and **SSC** can also be chosen instead of internationally approved methods however **OTH – other methodologies** can only be used if any of the preceding methods above **are not applicable**. Once you have decided on the method you can enter this into the Method box of the electronic form.

Method used for determination of releases	Designation of the method used
Measurement methodologies	
Internationally approved measurement standard.	**INT** short designation of the relevant standard (e.g. BS, EN 14385:2004; CEN; ISO)
Measurement methodology already prescribed by the competent authority in a licence or an operating permit for that facility.	**PER***
National or regional binding measurement methodology prescribed by legal act for the radionuclide and facility concerned.	**NRB***
Alternative Measurement Method in accordance with existing CEN/ISO measurement standards.	**ALT**
Measurement methodology the performance of which is demonstrated by means of certified reference materials and accepted by competent authority.	**CRM**
Other measurement methodology.	**OTH***
*** In addition to the three letter abbreviation (e.g. NRB) the short designation (e.g. VDI 3873) or a short description of the methodology could be given.**	
Calculation methodologies	
Internationally approved calculation method.	**INT** short designation of the method used: ETS, IPCC, UNECE/EMEP
Calculation methodology already prescribed by the competent authority in a licence or an operating permit for that facility.	**PER***
National or regional binding calculation methodology prescribed by legal act for the radionuclide and facility concerned.	**NRB***
Mass balance method which is accepted by the competent authority.	**MAB***
European-wide sector specific calculation method.	**SSC**
Other calculation methodology.	**OTH***
*** In addition to the three letter abbreviation (e.g. NRB) the short designation (e.g. VDI 3873) or a short description of the methodology could be given.**	

6.4 Method Description

6.4.1 After deciding on the designation of the method used you should then enter a short description for the method with in the “Method Description” box. Generally, the methodology should be the same as currently required by the reporting requirements of any existing SEPA Authorisation.

6.4.2 Should you wish to make the annual waste return required by your Authorisation via SPRI, the information **must** be entered in the “Method Description” box.

6.4.3 The entered information will need to reflect the periodicity of the limits set out in the Authorisation (i.e. monthly, quarterly) in order to demonstrate compliance with the limits. The format in **Appendix 4** is the method which must be used when entering this data.

6.4.4 The data entered within the Method Description box is carried forward into the return form for the next year and therefore you will need to review and update the emission values each year.

7 RADIONUCLIDE SPECIFIC GUIDANCE

SPRI has previously required the reporting of specified radionuclides, each with their own reporting thresholds. This was often different from what was limited in the Authorisations, and this, in turn, has caused unnecessary burden on the Authorisation Holders and potential confusion for those who may wish to use the data. Therefore, SEPA has decided to change the list of radioactive substances indicative pollutants to mirror more closely what appears in the Authorisations.

In addition, in order to allow SPRI to be used as a mechanism for making annual waste returns as required by condition of the Authorisation, SEPA has set all the reporting thresholds for radioactive substances to zero.

7.1 Other alpha-emitting radionuclides

7.1.1 Some Authorisations limit emissions containing alpha-emitting radionuclides that are not considered significant enough to require individual radionuclide limits into a single catch-all group. This is often described as “other alpha-emitting radionuclides not listed separately” or similar in the Authorisation. If your Authorisation contains such a grouping, it must be reported in this category.

7.2 Other non alpha-emitting radionuclides

7.2.1 Some Authorisations limit emissions containing non alpha-emitting radionuclides that are not considered significant enough to require individual radionuclide limits into a single catch-all category. This is often described as “other non alpha-emitting radionuclides not listed separately” or “other beta/gamma radionuclides” in the Authorisation. This group includes beta, gamma and positron-emitting radionuclides as well as electron-capture radionuclides. If your Authorisation contains such a grouping, it must be reported in this category. .

7.3 Groups of two or more specified radionuclides

7.3.1 Some Authorisations contain limits on groups of two or more specified radionuclides. For example, an Authorisation limit might combine phosphorus-32 with phosphorus-33 or tritium with carbon-14. If your Authorisation contains such a group, it must be reported in this category.

7.4 Other radionuclide not listed.

7.4.1 SEPA has made every attempt to include all of the most common radionuclides in the list of radioactive substances indicative pollutants; however, it is recognised that there may be instances where an unusual radionuclide has been specifically limited within an Authorisation. If your Authorisation contains such a specified radionuclide that is not listed, it must be reported in this category.

7.4.2 In the event that there are two or more specified radionuclides that are not listed, you must add the activities of all such radionuclides together and report this under the heading of “Other Radionuclide Not Listed”. The breakdown of this value into individual radionuclides should then be done in the “Method Description” box, using a simple table.

7.5 Removed pollutants

7.5.1 Previously, the list of indicative pollutants for releases to air contained the categories of “Other Alpha Particulate” and “Other Beta/Gamma Particulate and the list for releases to water and to waste water contained the categories of “Total Alpha”, “Total Beta/Gamma (excl tritium)”, “Other Alpha activity” and “Other Beta/Gamma activity”. These have all been removed in favour of reporting what appears in your Authorisation. The data from previous years that was put into these categories will continue to be kept in that format within the system.

8 APPENDIX 1 – TABLES OF RADIONUCLIDES

8.1 Releases to air

Radionuclide or group of radionuclides
Americium-241
Argon-41
Caesium-137
Carbon-14
Fluorine-18
Iodine-125
Iodine-129
Iodine-131
Krypton-85
Lead – 210
Plutonium alpha
Polonium-210
Radium-226
Radium-228
Radon-222
Ruthenium-106
Sulphur-35
Technetium-99m
Tritium
Uranium alpha
Xenon-133
Other Alpha-emitting Radionuclides
Other Non Alpha-emitting Radionuclides
Group of Two or More Specified Radionuclides
Other Radionuclide Not Listed

8.2 Releases to water

Radionuclide or group of radionuclides
Americium-241
Antimony-125
Caesium-134
Caesium-137
Carbon-14
Cerium-144
Cobalt-60
Curium-242
Iodine-129
Lead-210
Neptunium-237
Niobium-95
Polonium-210
Plutonium alpha
Plutonium-241
Radium-226
Radium-228
Ruthenium-106
Strontium-90
Sulphur-35
Technetium-99m
Thorium-230
Thorium-232
Tritium
Uranium alpha
Yttrium-90
Zirconium-95

Other Alpha-emitting Radionuclides
Other Non Alpha-emitting Radionuclides
Group of Two or More Specified Radionuclides
Other Radionuclide Not Listed

8.3 Releases to wastewater

Radionuclide or group of radionuclides
Americium-241
Antimony-125
Caesium-134
Caesium-137
Carbon-14
Cerium-144
Chromium-51
Cobalt-57
Cobalt-58
Cobalt-60
Curium-242
Erbium-169
Fluorine-18
Gallium-67
Indium-111
Iodine-123
Iodine-125
Iodine-129
Iodine-131
Lead-210
Neptunium-237
Niobium-95
Phosphorus-32
Phosphorus-33
Plutonium alpha
Plutonium-241
Polonium-210
Radium-226
Radium-228
Ruthenium-106
Samarium-153
Selenium-75
Sodium-22
Strontium-89
Strontium-90
Sulphur-35
Technetium-99m
Thallium-201
Thorium-230
Thorium-232
Tritium
Uranium alpha
Yttrium-90
Zirconium-95
Other Alpha-emitting Radionuclides
Other Non Alpha-emitting Radionuclides
Group of Two or More Specified Radionuclides
Other Radionuclide Not Listed

9 APPENDIX 2 – METHOD FOR ENTERING ANNUAL RETURN

1. For those Authorisation limits which have been set on a monthly basis:

Month	Release Value (MBq)
Jan	
Feb	
Mar	
Apr	
May	
Jun	
Jul	
Aug	
Sept	
Oct	
Nov	
Dec	

2. For those Authorisation limits which have been set on a quarterly basis:

Quarter	Release Value (MBq)
Q1	
Q2	
Q3	
Q4	

Q1 Jan – Mar Q3 Jul – Sept
Q2 Apr – Jun Q4 Oct – Dec

IF THE LIMIT IN YOUR AUTHORISATION STATES A DIFFERENT FREQUENCY (e.g. WEEKLY, DAILY) PLEASE ADJUST THE TABLE ACCORDINGLY.