Reporting of Discharges of Radioactive Substances from the Nuclear Sector to the OSPAR Maritime Area

(OSPAR Agreement 2013-10, 2021 Update)[1]

Introduction

1. This document provides some recommendations and guidelines for the reporting of liquid discharges from nuclear sub-sectors.

Use of detection limits and decision thresholds

2. The definitions and use of detection limits (DLs) and decision thresholds (DTs) for the reporting of discharge data for the nuclear sector should follow the Commission Recommendation 2004/2 Euratom[2] where possible. The detection limits and/or decision thresholds used in the reporting shall be given as a note to the tables taking into account Paragraph 8 of the European Commission Recommendation as appropriate. For example, for each key radionuclide, the highest value of the detection limit that has been obtained among all the measurements for the period considered should be noted.

Operational and non-operational discharges

3. The reporting formats include Tables 1-4 for the reporting of discharges associated with operational activities and Table 5 for the reporting of discharges associated with decommissioning activities that may include historical and legacy wastes (i.e. non-operational activities).

4. The definitions of discharges associated with operational and non-operational (previously referred to as exceptional discharges) were agreed at the Radioactive Substances Committee (RSC) 2013 and are set out in RSC 13/3/1 which also includes guidance on interpretation. In summary the key definitions and notes are reproduced below.

<u>Discharges associated with operational activities</u>

> Discharges from existing or planned production operations, associated directly with the generation of a 'product', for which there are clear benefits (commercial or otherwise) associated with the activity. Production facilities include, but are not limited to, the following sub-sectors*:*
>
> - Nuclear power station sub-sector (Reported under Table 1)
> - Nuclear fuel reprocessing sub-sector (Reported under Table 2)

[1] English only

[2] Commission Recommendation 2004/2/Euratom of 18 December 2003 on standardised information on radioactive airborne and liquid discharges into the environment from nuclear power reactors and reprocessing plants in normal operation.

- Nuclear fuel fabrication and enrichment sub-sector (Reported under Table 3)
- Nuclear research and development sub-sector (Reported under Table 4)

Discharges associated with the management, treatment or disposal of solid and other stored wastes arising from existing or planned operations would also be considered to be operational discharges.

Discharges associated with decommissioning activities that may include historical and legacy wastes

Discharges from existing and legacy facilities that clearly are not associated with the carrying on of production operations at those facilities and instead occur as a result of the clean-out and decommissioning, and associated waste processing, of those facilities following permanent cessation of production operations (existing and legacy facilities). The nature and magnitude of such discharges will in many cases be significantly affected by a pressing need to reduce the hazards and risks associated with those facilities. Such discharges should be reported under Table 5.

Note:

i. Contracting Parties would be required to provide evidence to OSPAR that any "Non-operational Discharges" meet this definition;

ii. Legacy facilities are those facilities in which quantities of materials and wastes have accumulated as a result of past production operations. Discharges arise from carrying out a process which is not primarily focussed on producing a beneficial 'product';

iii. "Existing" refers to the date of adoption by RSC of these definitions, with "past" to be interpreted accordingly.

Reporting guidance and derivation of calculated values of total alpha and total beta (excluding tritium)

5. In reporting discharges and metadata from the nuclear sector, Contracting Parties should follow the guidance given in the individual reporting formats as well as the following general instructions:

a. Discharges should be reported in TBq;
b. If no data is available, cells in the reporting format should be left blank;
c. No symbols (<) or any other text should be used to indicate that a reported discharge is based on detection limits, only the numerical value should be included.

6. The reporting formats include formulas and definitions for the derivation of calculated Total alpha and calculated Total beta (excluding Tritium) as agreed by individual Contracting Parties for the facilities for which data is currently reported. These are summarised in Annex 1 to this Agreement.

Reporting procedures

7. Discharges of radioactive substances from the nuclear sector should be made using the agreed reporting formats by the 30th of September of each year. The reports should be emailed to data@ospar.org

8. The data reported will be considered at the RSC annual meeting in the following year.

9. Reporting formats are here: https://www.ospar.org/work-areas/rsc/other/reporting-formats

Review of agreement

10. RSC should review the sub-sectors and the indicator radionuclides as well as any reporting procedures and guidance that are covered in the agreement as required.

Annex 1 Overview of the formulas for the derivation of Calculated Total alpha and Calculated Total-beta (excluding Tritium) for facilities for which Contracting Parties report discharge data

Table 1 Nuclear power station sub-sector (operational discharges)

Contracting party	Location ref / Site	Indicator	Derivation
Belgium	BE01 Doel BE02 Tihange	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= the sum of Pure b, Other radionuclides, Ag110m, Ce144, Co58, Co60, Cs134, Cs137, Ru106, Sb125, Zn65 and Zr/Nb95 Pure beta is the sum of Sr89, Sr-90 and Fe-55
France	FR01 Belleville FR03 Cattenom FR04 Chinon FR05 Chooz FR06 Dampierre-en-Burly FR07 Fessenheim FR08 Flamanville FR09 Golfech FR10 Gravelines FR11 Nogent-sur-Seine FR12 Paluel FR13 Penly FR14 Saint Laurent FR16 Civaux FR18 Le Blayais	Calculated Total alpha	There are no alpha discharges
		Calculated Total beta (ex Tritium)	= Other radionuclides
Germany	DE02 Brokdorf DE05 Grohe/Emmerthal DE09a Lingen/Emsland DE11b Neckar-Westheim 2 DE13b Philippsburg 2	Calculated Total alpha	= Total a Zero discharge when no value reported
		Calculated Total beta (ex Tritium)	= Other radionuclides
Netherlands	NL01 Borssele	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Total b (ex Tritium)

Spain	ES01 Almaraz ES03 Trillo	Calculated Total alpha	= Total a Zero discharge when no value reported
		Calculated Total beta (ex Tritium)	= Other radionuclides
Sweden	SE02 Ringhals 1 SE02 Ringhals 2 SE02 Ringhals 3 SE02 Ringhals 4	Calculated Total alpha	= Total a This is actually a Total alpha measurement
		Calculated Total beta (ex Tritium)	= the sum of Other radionuclides and all individually reported radionuclides
Switzerland	CH01 Beznau CH02 Gösgen CH03 Leibstadt CH04 Mühleberg CH06 ZWILAG	Calculated Total alpha	= Total a Either a Total alpha measurement or the sum of the individually reported alpha emitters
		Calculated Total beta (ex Tritium)	= Total b (ex Tritium) Total beta (ex Tritium) = the sum of the other individual radionuclides not including tritium and alpha emitters
UK	UK05b Dungeness B UK06 Hartlepool UK07a Heysham 1 UK07b Heysham 2 UK08b Hinkley Point B	Calculated Total alpha	= Total a Zero discharge when no value reported
		Calculated Total beta (ex Tritium)	= the sum of Other radionuclides, Co60, C137 and S35
	UK09b Hunterston B UK12 Torness	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= the sum of Other radionuclides, Co60 and S35
	UK11b Sizewell B	Calculated Total alpha	= Total a Zero discharge when no value reported
		Calculated Total beta (ex Tritium)	= the sum of Other radionuclides and Cs137

Table 2 Nuclear fuel reprocessing sub-sector (operational discharges)

Contracting party	Location ref / Site	Indicator	Derivation
France	FR15 La Hague	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Total b (ex Tritium)
UK	UK15 Sellafield	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Total b (ex Tritium)

Table 3 Nuclear fuel fabrication and enrichment sub-sector (operational discharges)

Contracting party	Location ref / Site	Indicator	Derivation
Germany	DE09 Lingen (Advanced Nuclear Fuels)	Calculated Total alpha	Zero discharge when no value reported
		Calculated Total beta (ex Tritium	Zero discharge when no value reported
	DE19 Gronau (Urenco)	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Total b (ex Tritium)
Netherlands	NL03 Almelo (Urenco)	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Total b (ex Tritium)
Spain	ES04 Juzbado	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	Zero discharge when no value reported
UK	UK16 Capenhurst	Calculated Total alpha	= the sum of uranium a, other a and uranium daughters
		Calculated Total beta (ex Tritium)	= Tc99
	UK17 Springfields	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Total b (ex Tritium)

Table 4 Nuclear research and development sub-sector (operational discharges)

Contracting party	Location ref / Site	Indicator	Derivation
Belgium	BE03 Mol	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Total b + Co-60, Cs-134, Cs-137 and Sr-90/Y-90
France	FR19 Saclay	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Other radionuclides Other radionuclides is the sum of gamma emitters + Sr90
Germany	DE08 Geesthacht DE18 Karlsruhe DE22 HMI Berlin DE23 Jülich DE24 Rosseorf DE26 Mainz	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Other radionuclides
Netherlands	NL04 Delft	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium	= Total b Total b value reported includes minor quantities of Tritium
	NL05 Petten	Calculated Total alpha	= Total a
		Calculated Total beta (ex Tritium)	= Total b/g
Norway	NO01 Halden NO02 Kjeller	Calculated Total alpha	= Total a (not reported for Halden)
		Calculated Total beta (ex Tritium)	= Total b (ex Tritium)
Portugal	PT01 Campus de Sacavém	Calculated Total alpha	No Total alpha discharges
		Calculated Total beta (ex Tritium)	= Total b

Table 4 (Continued) Nuclear research and development sub-sector (operational discharges)

Contracting party	Location ref / Site	Indicator	Derivation
Switzerland	CH05 Paul Scherrer Institute	Calculated Total alpha	= Total a The sum of the individually reported alpha emitters
		Calculated Total beta (ex Tritium)	= Other radionuclides Other radionuclides = the sum of the other individual radionuclides not including tritium and alpha emitters

Table 5 Discharges associated with decommissioning activities that may include historical and legacy wastes (non-operational discharges)

Contracting party	Location ref / Site	Sub-sector code	Indicator	Derivation
Denmark	DK01 Risø	NRD	Calculated Total alpha	= Total a Zero discharge when no value reported
			Calculated Total beta (ex Tritium)	= Total b (ex Tritium)
France	FR04 Chinon FR05 Chooz	NPS	Calculated Total alpha	There are no alpha discharges
			Calculated Total beta (ex Tritium)	= Other radionuclides
	FR15 La Hague	NFR	Calculated Total alpha	= Total a
			Calculated Total beta (ex Tritium)	= Total b (ex Tritium)
	FR17 Fontenay-aux-Roses	NRD	Calculated Total alpha	= Total a
			Calculated Total beta (ex Tritium)	= Other radionuclides
Germany	DE03 Brunsbüttel DE04 Grafenrheinfeld DE08a Krümmel / Geesthacht DE09b Lingen DE10 Mülheim-Kärlich DE11a Neckar-Westheim 1 DE12 Obrigheim DE13a Philippsburg 1 DE14 Rheinsberg DE15 Stade DE16 Rodenkirchen / Unterweser DE17 Würgassen / Beverungen	NPS	Calculated Total alpha	= Total a Zero discharge when no value reported
			Calculated Total beta (ex Tritium)	= Other radionuclides

Table 5 (Continued) Discharges associated with decommissioning activities that may include historical and legacy wastes (non-operational discharges)

Contracting party	Location ref / Site	Sub-sector code	Indicator	Derivation
Spain	ES02 José Cabrera	NPS	Calculated Total alpha	= Total a Zero discharge when no value reported
			Calculated Total beta (ex Tritium)	= Other radionuclides
UK	UK01 Berkeley UK02 Bradwell UK05a Dungeness A UK08a Hinkley Point A UK10 Oldbury UK11a Sizewell A UK13 Trawsfynydd	NPS	Calculated Total alpha	= Total a Zero discharge when no value reported
			Calculated Total beta (ex Tritium)	= the sum of Other radionuclides and Cs137
	UK04 Chapelcross UK09a Hunterston A UK14 Wylfa	NPS	Calculated Total alpha	= Total a Zero discharge when no value reported
			Calculated Total beta (ex Tritium)	= Other radionuclides
	UK15 Sellafield	NFR	Calculated Total alpha	= Total a
			Calculated Total beta (ex Tritium)	= Total b (ex Tritium)
	UK18 Dounreay	NRD	Calculated Total alpha	= Total a
			Calculated Total beta (ex Tritium)	= the sum of Other radionuclides, Cs137 and Sr90
	UK19 Harwell	NRD	Calculated Total alpha	= Total a
			Calculated Total beta (ex Tritium)	= Total b (ex Tritium)
	UK20 Winfrith	NRD	Calculated Total alpha	= Total a
			Calculated Total beta (ex Tritium)	= the sum of Other radionuclides and Cs137