

**SECOND SUPPLEMENT TO THE GIBRALTAR  
GAZETTE**

No. 4212 of 12 November, 2015

---

---

LEGAL NOTICE NO. 203 OF 2015.

**PUBLIC HEALTH ACT**

**PUBLIC HEALTH (POTABLE WATER)  
(AMENDMENT) RULES 2015**

In exercise of the powers conferred upon it by section 110A of the Public Health Act, and in order to transpose into the law of Gibraltar Council Directive 2013/51/Euratom of 22 October 2013 laying down requirements for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption, the Government has made the following Rules –

**Title.**

1. These Rules may be cited as the Public Health (Potable Water) (Amendment) Rules 2015.

**Commencement.**

2. These Rules come into operation on 28 November 2015.

**Amendment of the Public Health (Potable Water) Rules, 1994.**

3. The Public Health (Potable Water) Rules, 1994 are amended in accordance with the provisions of these Rules.

**Amendment of rule 1A.**

4. In rule 1A(1) –

- (a) in the definition of “the Directive”, for “.” substitute “;”;
- (b) after “the Directive” insert the following definitions –

““Directive 2013/51/Euratom” means Council Directive 2013/51/Euratom of 22 October 2013 laying down requirements for the protection of the health of the

general public with regard to radioactive substances in water intended for human consumption;

“indicative dose”, for the purposes of Schedules 4 to 6, means the committed effective dose for one year of ingestion resulting from all radionuclides whose presence has been detected in a supply of potable water, of natural and artificial origin, but excluding tritium, potassium-40, radon and short-lived radon decay products;

“parametric value”, for the purposes of Schedules 4 to 6, means the value of radioactive substances in potable water above which the competent national authority shall assess whether the presence of radioactive substances in potable water poses a risk to human health which requires action and, where necessary, shall take remedial action to improve the quality of water to a level which complies with the requirements for the protection of human health from a radiation point of view;

“radioactive substance” means any substance that contains one or more radionuclides the activity or concentration of which cannot be disregarded as far as radiation protection is concerned.”.

**New rule 4A.**

5. After rule 4 insert –

**“National values with regard to radioactive substances in potable water.**

4A. Schedules 4 to 6 shall have effect with regard to radioactive substances in potable water in accordance with Directive 2013/51/Euratom.

**Amendment of rule 5.**

6. In rule 5 –

(a) in subrule (1) for the words “from amongst the points where the water is made available to the user as the authority shall specify and at such frequency and of such scope as the authority shall have determined in accordance with Schedule 2 to these rules” substitute “as specified in subrule (1A) and at such frequency and of such scope as the authority shall have determined in accordance with Schedule 2, or for the purposes of Directive 2013/51/Euratom, Schedule 5, to these rules.”;

(b) after subrule (1) insert –

“(1A) The points of sampling referred to in subrule (1) shall be –

(a) in the case of water supplied from a distribution network, the point at which it emerges from the taps where the water is normally taken or at any point within the supply zone or at the treatment works provided there is no adverse change in the concentration value between those points;

(b) in the case of water supplied from a tanker, the point at which it emerges from the tanker;

(c) in the case of water put into bottles or containers intended for sale, the point at which the water is put into the bottles or containers;

(d) in the case of water used in a food-production undertaking, the point where the water is used in the undertaking.”;

(c) in rule 5(2) after “Directive” insert “and Directive 2013/51/Euratom”;

(d) in rule 5(3) for the words “as is necessary to ensure compliance with the Directive including the preparation of reports required under the Directive” substitute “and Directive 2013/51/Euratom as is necessary to ensure compliance with those directives, including the preparation of any reports required thereunder.”;

(e) in rule 5(4) –

- (i) after the words “Schedule 3” insert “, or for the purposes of Directive 2013/51/Euratom, Schedule 6”;
- (ii) for the words “that Annex” substitute “the corresponding Schedule”;

(f) in rule 5(5) –

- (i) after the word “Directive” insert “or Directive 2013/51/Euratom”;
- (ii) after the words “whether or not it has been” remove “.”.

**Amendment of rule 8.**

7. In subrule (6) for the words “as shall applied” substitute “and Directive 2013/51/Euratom as applied”.

**Amendment of rule 9.**

8. In rule 9 –

(a) in subrule (1) after the word “Directive” insert “and Directive 2013/51/Euratom”;

(b) for subrule (1)(a) substitute –

“(a) require a supplier of potable water to keep such records as in the opinion of the authority are appropriate for the purpose of showing compliance with the Directive and Directive 2013/51/Euratom as applied by the Act and these Rules;”.

**Amendment of rule 11A.**

9. In rule 11A –

(a) in subrule (4) after the words “Schedule 1,” insert “or a parametric value set out in Schedule 4,”;

(b) in subrule (5) for the words “Schedule 1” substitute “Schedules 1 or 4”.

**Amendment of Schedule 1.**

10. In Schedule 1, Part C, remove the heading “Radioactivity” and the corresponding table and notes that follow.

**New Schedule 4.**

11. After Schedule 3 insert –

**“SCHEDULE 4**

**PARAMETRIC VALUES FOR RADON, TRITIUM AND ID OF WATER INTENDED FOR HUMAN CONSUMPTION**

Parameter	Parametric value	Unit	Notes
Radon	100	Bq/l	(Note 1)
Tritium	100	Bq/l	(Note 2)
ID	0,10	mSv	

Note 1:

- (a) Member States may set a level for radon which is judged inappropriate to be exceeded and below which optimisation of protection should be continued, without compromising water supply on a national or regional scale. The level set by a Member State may be higher than 100 Bq/l but lower than 1 000 Bq/l. In order to simplify national legislation, Member States may choose to adjust the parametric value to this level.
- (b) Remedial action is deemed to be justified on radiological protection grounds, without further consideration, where radon concentrations exceed 1 000 Bq/l.

Note 2:

Elevated levels of tritium may indicate the presence of other artificial radionuclides. If the tritium concentration exceeds its parametric value, an analysis of the presence of other artificial radionuclides shall be required.”.

**New Schedule 5.**

12. After Schedule 4 insert –

**“SCHEDULE 5**

**MONITORING OF RADIOACTIVE SUBSTANCES**

**1. General principles and monitoring frequencies**

All parameters for which parametric values must be set pursuant with Article 5(1) shall be subject to monitoring. However, no monitoring of a specific parameter shall be required where a competent authority can establish that, for a period of time to be determined by them, that parameter is not likely to be present in a given supply of water intended for human consumption in concentrations which could exceed the corresponding parametric value.

In case of naturally occurring radionuclides, where previous results have shown that the concentration of radionuclides is stable, the frequency, in derogation from the minimum sampling requirements set out in point 6, is to be decided by the Member State, taking into consideration the risk to human health. A Member State is not required to monitor water intended for human consumption for radon or tritium or to establish the ID where it is satisfied on the basis of representative surveys, monitoring data or other reliable information that, for a period of time to be determined by them, the levels of radon, tritium or of the calculated ID will remain below the respective parametric values listed in Annex I. In that case, it shall communicate the grounds for its decision to the Commission and provide the Commission with the necessary documentation supporting that decision, including the findings of any surveys, monitoring or investigations carried out. In this context, the provisions with regard to the minimum sampling and analysis requirements set out in point 6 of this Annex do not apply.

## **2. Radon**

Member States shall ensure that representative surveys are undertaken to determine the scale and nature of likely exposures to radon in water intended for human consumption originating from different types of ground water sources and wells in different geological areas. The surveys shall be designed in such a way that underlying parameters, and especially the geology and hydrology of the area, radioactivity of rock or soil, and well type, can be identified and used to direct further action to areas of likely high exposure. Monitoring of radon concentrations shall be undertaken where there is reason to believe, on the basis of the results of the representative surveys or other reliable information, that the parametric value laid down pursuant to Article 5(1) might be exceeded.

## **3. Tritium**

Member States shall ensure that monitoring of tritium in water intended for human consumption is carried out where an anthropogenic source of tritium or other artificial radionuclides is present within the catchment area and it cannot be shown on the basis of other surveillance programmes or investigations that the level of tritium is below the parametric value listed in Annex I. Where monitoring for tritium is required, it shall be carried out at the frequencies indicated in the table appearing in point 6 of this Annex. If the concentration of tritium exceeds its parametric value, an investigation of the presence of other artificial radionuclides shall be required.

## **4. Indicative dose**

Monitoring of water intended for human consumption for the ID shall be carried out where a source of artificial or elevated natural radioactivity is present and it cannot be shown on the basis of other representative monitoring programmes or other investigations that the level of ID is below the parametric value listed in Annex I. Where monitoring for artificial radionuclide levels is required, it

shall be carried out at the frequency indicated in the table appearing in point 6 of this Annex. Where monitoring for natural radionuclide levels is required, each Member State shall define the frequency of the monitoring of either gross alpha activity, gross beta activity or individual natural radionuclides depending on the screening strategy adopted by it (according to Annex III). The monitoring frequency may vary from a single check measurement to the frequencies indicated in the table appearing in point 6 of this Annex. Where only a single check for natural radioactivity is required, a recheck shall be required at least where any change occurs in relation to the supply likely to influence the concentrations of radionuclides in water intended for human consumption.

**5. Water treatment**

Where treatment to reduce the level of radionuclides in water intended for human consumption has been taken, monitoring shall be carried out at the frequencies indicated in the table appearing in point 6 to ensure the continued efficacy of that treatment.

**6. Minimum sampling and analysis frequencies**

The minimum sampling and analysis frequency for the monitoring of water intended for human consumption supplied from a distribution network or from a tanker or used in a food production undertaking shall be as set out in the following table:

**Table**

**Minimum sampling and analysis frequencies for monitoring of water intended for human consumption supplied from a distribution network or from a tanker or used in a food production undertaking**

Volume of water distributed or produced each day within a supply zone (Notes 1 and 2) m <sup>3</sup>	Number of samples per year (Notes 3 and 4)
volume ≤ 100	(Note 5)
100 < volume ≤ 1 000	1



1 000 < volume ≤ 10 000	1 + 1 for each 3 300 m <sup>3</sup> /d and part thereof of the total volume
10 000 < volume ≤ 100 000	3 + 1 for each 10 000 m <sup>3</sup> /d and part thereof of the total volume
volume > 100 000	10 + 1 for each 25 000 m <sup>3</sup> /d and part thereof of the total volume

Note 1: A supply zone is a geographically defined area within which water intended for human consumption comes from one or more sources and within which water quality may be considered as being approximately uniform.

Note 2: The volumes are calculated as averages taken over a calendar year. A Member State may use the number of inhabitants in a supply zone instead of the volume of water to determine the minimum frequency, assuming a water consumption of 200 l/day/capita.

Note 3: As far as possible, the number of samples should be distributed equally in time and location.

Note 4: In the event of intermittent short-term supply the monitoring frequency of water distributed by tankers is to be decided by the Member State concerned.

Note 5: The frequency is to be decided by the Member State concerned.

Member States shall define sampling frequencies for water intended for human consumption put into bottles or containers intended for sale. In so doing Member States may take into consideration the volume of water produced.

#### **7. Averaging**

Where a parametric value is exceeded in a particular sample, Member States shall define the extent of resampling necessary to

ensure that the measured values are representative of an average activity concentration for a full year.”.

**New Schedule 6.**

13. After Schedule 5 insert –

**“SCHEDULE 6**

**MONITORING FOR INDICATIVE DOSE AND ANALYTICAL PERFORMANCE CHARACTERISTICS**

**1. Monitoring for compliance with the ID**

Member States may use various reliable screening strategies to indicate the presence of radioactivity in water intended for human consumption. These strategies may include screening for certain radionuclides, or screening for an individual radionuclide, or gross alpha activity or gross beta activity screening.

(a) screening for certain radionuclides, or screening for an individual radionuclide

If one of the activity concentrations exceeds 20% of the corresponding derived value or the tritium concentration exceeds its parametric value listed in Annex I, an analysis of additional radionuclides shall be required. The radionuclides to be measured shall be defined by Member States taking into account all relevant information about likely sources of radio- activity.

(b) screening strategies for gross alpha activity and gross beta activity

Member States may use screening strategies for gross alpha activity and gross beta activity <sup>(1)</sup> to monitor for the parametric indicator value for ID.

For this purpose gross alpha activity or gross beta activity screening levels shall be set. The recommended screening level for gross alpha activity is 0,1 Bq/l. The recommended screening level for gross beta activity is 1,0 Bq/l.

If the gross alpha activity and gross beta activity are less than 0,1 Bq/l and 1,0 Bq/l respectively, the Member State may assume that the ID is less than the parametric value of 0,1 mSv and radiological investigation is not needed unless it is known from other sources of information that specific radionuclides are present in the water that are liable to cause an ID in excess of 0,1 mSv.

If the gross alpha activity exceeds 0,1 Bq/l or the gross beta activity exceeds 1,0 Bq/l, analysis for specific radionuclides shall be required.

Member States may set alternative screening levels for gross alpha activity and gross beta activity where they can demonstrate that the alternative levels are in compliance with an ID of 0,1 mSv.

The radionuclides to be measured shall be defined by Member States taking into account all relevant information about likely sources of radioactivity. Since elevated levels of tritium may indicate the presence of other artificial radionuclides, tritium, gross alpha activity and gross beta activity should be measured in the same sample.

## 2. Calculation of the ID

The ID shall be calculated from the measured radionuclide concentrations and the dose coefficients laid down in Annex III, Table A of Directive 96/29/Euratom or more recent information recognised by the competent authorities in the Member State, on the basis of the annual intake of water (730 l for adults). Where the following formula is satisfied, Member States may assume that the ID is less than the parametric value of 0,1 mSv and no further investigation shall be required:

$$\sum_{i=1}^n \frac{C_i(obs)}{C_i(der)} \leq 1$$

where

$C_i(obs)$  = observed concentration of radionuclide  $i$

$C_i(der)$  = derived concentration of radionuclide  $i$

$N$  = number of radionuclides detected.

(<sup>1</sup>) Where appropriate gross beta activity may be replaced by residual beta activity after subtraction of the K-40 activity concentration.

**Derived concentrations for radioactivity in water intended for human consumption (<sup>1</sup>)**

Origin	Nuclide	Derived concentration
Natural	U-238 ( <sup>2</sup> )	3,0 Bq/l
	U-234 ( <sup>2</sup> )	2,8 Bq/l
	Ra-226	0,5 Bq/l
	Ra-228	0,2 Bq/l
	Pb-210	0,2 Bq/l
	Po-210	0,1 Bq/l
Artificial	C-14	240 Bq/l
	Sr-90	4,9 Bq/l
	Pu-239/Pu-240	0,6 Bq/l
	Am-241	0,7 Bq/l
	Co-60	40 Bq/l
	Cs-134	7,2 Bq/l

Cs-137	11 Bq/l
I-131	6,2 Bq/l

(<sup>1</sup>) This table includes values for the most common natural and artificial radionuclides; these are precise values, calculated for a dose of 0,1 mSv, an annual intake of 730 litre and using the dose coefficients laid down in Annex III, Table A of Directive 96/29/Euratom; derived concentrations for other radionuclides can be calculated on the same basis, and values can be updated on the basis of more recent information recognised by the competent authorities in the Member State.

(<sup>2</sup>) This table allows only for the radiological properties of uranium, not for its chemical toxicity.

### 3. Performance characteristics and methods of analysis

For the following parameters and radionuclides, the method of analysis used must, as a minimum, be capable of measuring activity concentrations with a limit of detection specified below:

Parameters and radionuclides	Limit of detection (Notes 1, 2)	Notes
Tritium	10 Bq/l	Note 3
Radon	10 Bq/l	Note 3
gross alpha activity	0,04 Bq/l	Note 4
gross beta activity	0,4 Bq/l	Note 4
U-238	0,02 Bq/l	
U-234	0,02 Bq/l	
Ra-226	0,04 Bq/l	
Ra-228	0,02 Bq/l	Note 5
Pb-210	0,02 Bq/l	
Po-210	0,01 Bq/l	
C-14	20 Bq/l	
Sr-90	0,4 Bq/l	
Pu-239/Pu-240	0,04 Bq/l	
Am-241	0,06 Bq/l	
Co-60	0,5 Bq/l	
Cs-134	0,5 Bq/l	
Cs-137	0,5 Bq/l	
I-131	0,5 Bq/l	

Note 1: The limit of detection shall be calculated according to the ISO standard 11929: Determination of the characteristic limits (decision threshold, detection limit and limits of the confidence interval) for measurements of ionising radiation — Fundamentals and application, with probabilities of errors of 1st and 2nd kind of 0,05 each.

Note 2: Measurement uncertainties shall be calculated and reported as complete standard uncertainties, or as expanded standard uncertainties with an expansion factor of 1,96, according to the ISO Guide for the Expression of Uncertainty in Measurement.

Note 3: The limit of detection for tritium and for radon is 10 % of its parametric value of 100 Bq/l.

Note 4: The limit of detection for gross alpha activity and gross beta activities are 40 % of the screening values of 0,1 and 1,0 Bq/l respectively.

Note 5: This limit of detection applies only to initial screening for ID for a new water source; if initial checking indicates that it is not plausible that Ra-228 exceeds 20 % of the derived concentration, the limit of detection may be increased to 0,08 Bq/l for routine Ra-228 nuclide specific measurements, until a subsequent re-check is required.”.

Dated 12th November, 2015.

DR J CORTES,  
Minister with responsibility for the environment.  
For the Government.

**EXPLANATORY MEMORANDUM**

These Regulations amend the Public Health (Potable Water) Rules, 1994 in order to transpose into the law of Gibraltar Council Directive 2013/51/Euratom.

