

**2016 No. 411 (W. 129)**

**WATER, WALES**

**The Private Water Supplies (Wales)  
(Amendment) Regulations 2016**

**EXPLANATORY NOTE**

*(This note is not part of the Regulations)*

These Regulations amend the Private Water Supplies (Wales) Regulations 2010 (“the 2010 Regulations”) so as to implement Council Directive 2013/51/EURATOM on the protection of the health of the general public with regard to radioactive substances in water intended for human consumption in relation to private water supplies.

Regulation 3 of these Regulations inserts new regulation 10A (monitoring of radioactive substances: general) into the 2010 Regulations. New regulation 10A makes provision for new requirements in relation to monitoring for radon, tritium and indicative dose (“the radioactive substances parameters”). Regulation 3 also inserts new regulation 10B (monitoring of radioactive substances: supplies to a single dwelling not used for a commercial or public activity) into the 2010 Regulations. New regulation 10B makes provision for when a local authority may undertake monitoring in relation to single domestic dwellings not used for commercial or public activities.

Further monitoring requirements are included in new Schedule 2A (monitoring of radioactive substances), which is inserted by regulation 7 of these Regulations.

Regulation 5 of these Regulations inserts a new Part (Part 3 – radioactive substances parameters) into Schedule 1 to the 2010 Regulations. The new Part 3 includes Table D which sets parametric values for the radioactive substances parameters. Regulations 2, 4 and 6 of these Regulations make consequential amendments in light of regulation 6.

Regulation 8 of these Regulations inserts a new Part (Part 3 – monitoring for indicative dose and analytical performance characteristics) into Schedule 3 to the 2010 Regulations. The new Part 3 makes provision for additional sampling and analysis requirements in

relation to the radioactive substances parameters listed in the new Table D in Part 3 of Schedule 1.

The Welsh Ministers' Code of Practice on the carrying out of Regulatory Impact Assessments was considered in relation to these Regulations. As a result, a regulatory impact assessment has been prepared as to the likely costs and benefits of complying with these Regulations. A copy can be obtained from the Welsh Government, Cathays Park, Cardiff, CF10 3NQ.

**2016 No. 411 (W. 129)**

**WATER, WALES**

**The Private Water Supplies (Wales)  
(Amendment) Regulations 2016**

*Made* 21 March 2016

*Laid before the National Assembly for Wales*  
23 March 2016

*Coming into force* 14 April 2016

The Welsh Ministers are designated<sup>(1)</sup> for the purposes of section 2(2) of the European Communities Act 1972<sup>(2)</sup> in relation to the quality of water intended for domestic purposes or for use in a food production undertaking.

The Welsh Ministers have carried out the consultation required by Article 9 of Regulation (EC) No 178/2002 of the European Parliament and of the Council laying down the general principles of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety<sup>(3)</sup>.

The Welsh Ministers make these Regulations in exercise of the powers conferred on them by section 2(2) of the European Communities Act 1972 and sections 67, 77(3) and (4) and 213(2) of the Water Industry Act 1991<sup>(4)</sup>.

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- (1) S.I. 2004/3328 as amended by S.I. 2005/850, S.I. 2007/1349, S.I. 2008/301, S.I. 2012/1759 and S.I. 2014/1362. The functions conferred on the National Assembly for Wales by means of that Order are now exercisable by the Welsh Ministers by virtue of section 162 of and paragraphs 28 and 30 of Schedule 11 to the Government of Wales Act 2006 (c. 32).
- (2) 1972 c. 68.
- (3) OJ No. L31, 1.2.2002, p. 1.
- (4) 1991 c. 56. The functions of the Secretary of State under section 67 were transferred to the National Assembly for Wales ("the Assembly") (a) for the making of regulations concerning water supplied using the supply system of a water undertaker, in relation to the supply system of any water undertaker whose area is wholly or mainly in Wales and (b) for the making of regulations concerning water supplied other than using the supply system of a water undertaker, in relation to Wales, by article 2 of, and Schedule 1 to, the National Assembly for Wales (Transfer of

## **Title, commencement and interpretation**

1.—(1) The title of these Regulations is the Private Water Supplies (Wales) (Amendment) Regulations 2016 and they come into force on 14 April 2016.

(2) In these Regulations, “the 2010 Regulations” (“*Rheoliadau 2010*”) means the Private Water Supplies (Wales) Regulations 2010(1).

## **Amendment of regulation 10 (other private supplies)**

2. In regulation 10(1)(f) of the 2010 Regulations—

- (a) before the words “Schedule 1” insert “Part 1 or 2 of”;
- (b) before the words “that Schedule” insert “those Parts of”.

## **New regulations 10A (monitoring of radioactive substances: general) and 10B (monitoring of radioactive substances: supplies to a single dwelling not used for a commercial or public activity)**

3. After regulation 10 (other private supplies) of the 2010 Regulations insert—

### **“Monitoring of radioactive substances: general**

**10A**—(1) A local authority must monitor each private supply in its area (other than a supply to a single dwelling not used for any commercial or public activity) for the parameters contained in the radioactive substances parameters table in accordance with this regulation and Schedule 2A.

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Functions) Order 1999 (S.I. 1999/672)(“the 1999 Order”); the functions of the Secretary of State under section 77 of that Act were transferred to the Assembly in relation to Wales by the same provisions of the 1999 Order; the functions of the Secretary of State under section 213 (as amended) of that Act were exercisable by the Assembly to the same extent as the powers to which that section applies were made exercisable by the Assembly by virtue of the same provision of the 1999 Order: *see* the entry in Schedule 1 to the 1999 Order for the Water Industry Act 1991 as substituted by paragraph (e) of Schedule 3 to the National Assembly for Wales (Transfer of Functions) Order 2000 (S.I. 2000/253) and amended by section 100(2) of the Water Act 2003 (c. 37); there are other amending instruments but none are relevant. References in Schedule 1 to the 1999 Order to specific sections of the Water Industry Act 1991 are treated by section 100(6) of the Water Act 2003 as referring to those sections as amended by the Water Act 2003. *See* section 219 (as amended) of the Water Industry Act 1991 for the definitions of “supply system” and “licensed water supplier”. By virtue of section 162 of, and paragraph 30 of Schedule 11 to, the Government of Wales Act 2006, the functions conferred on the Assembly are now exercisable by the Welsh Ministers.

- (1) S.I. 2010/66 (W. 16) amended by S.I. 2010/147 (W. 22) and S.I. 2010/1384 (W. 123).

(2) In this regulation and Schedule 2A, “the radioactive substances parameters table” means Table D in Part 3 of Schedule 1.

(3) Where a local authority is satisfied that a parameter in the radioactive substances parameters table is not likely to be present in a supply of water in its area in concentrations which could exceed the prescribed concentration or value for the relevant parameter in that table, the local authority may, for such a time as it sees appropriate, decide to exclude the parameter in question from the monitoring duty in paragraph (1).

(4) A decision under paragraph (3) must be made—

- (a) on the basis of representative surveys, monitoring data or other reliable information (including any risk assessment carried out in accordance with regulation 6); and
- (b) taking into account any guidance issued by the Welsh Ministers.

(5) The local authority must provide the Welsh Ministers with the grounds for its decision under paragraph (3) and the necessary documentation supporting the decision (including the findings of any surveys, monitoring or assessments carried out in accordance with paragraph (4)(a)).

(6) The Welsh Ministers must communicate the grounds for a decision under paragraph (3) to the European Commission with the necessary documentation provided under paragraph (5) supporting the decision.

(7) Where—

- (a) a decision has previously been made under paragraph (3); and
- (b) the local authority is no longer satisfied that the basis for the decision exists,

the exclusion from monitoring under paragraph (3) will no longer apply and the local authority must inform the Welsh Ministers in writing accordingly.

(8) In case of naturally occurring radionuclides, where previous results (including representative surveys, monitoring data or other reliable information) show that the concentration of radionuclides in a supply within a local authority’s area is stable, the minimum sampling and analysis frequencies are to be decided by the local authority, and confirmed by notice in writing to the Welsh Ministers, taking into consideration the risk to human health.

(9) The additional requirements in Part 3 of Schedule 3 apply to monitoring for compliance with the indicative dose parameter.

**Monitoring of radioactive substances: supplies to a single dwelling not used for a commercial or public activity**

**10B.** In the case of a private supply to a single dwelling not used for a commercial or public activity, a local authority may monitor the supply for the parameters contained in Table D in Part 3 of Schedule 1 in accordance with Schedule 2A and Part 3 of Schedule 3, and must do so if requested to do so by the owner or occupier.”

**Amendment of Table C (prescribed concentrations, values or states) in Part 2 of Schedule 1**

**4.** In Table C (prescribed concentrations, values or states) in Part 2 of Schedule 1 to the 2010 Regulations, omit—

- (a) the entry in relation to total indicative dose (for radioactivity);
- (b) the entry in relation to tritium (for radioactivity); and
- (c) note (ii).

**Insertion of new Part 3 (radioactive substances parameters) of Schedule 1**

**5.** After Part 2 of Schedule 1 to the 2010 Regulations, insert the part set out in Schedule 1 to these Regulations.

**Amendment of Part 2 of Schedule 2**

**6.** In Part 2 of Schedule 2 to the 2010 Regulations—

- (a) in paragraph 3(2)—
  - (i) before the words “Schedule 1” insert “Part 1 or 2 of”;
  - (ii) before the words “that Schedule” insert “either of those Parts of”;
- (b) in paragraph 3(3)(a), before the words “Schedule 1” insert “Part 1 or 2 of”.

**Insertion of new Schedule 2A (monitoring of radioactive substances)**

**7.** After Schedule 2 to the 2010 Regulations insert the schedule set out in Schedule 2 to these Regulations.

**Insertion of new Part 3 of Schedule 3 (monitoring for indicative dose and analytical performance characteristics)**

8. After Part 2 of Schedule 3 to the 2010 Regulations insert the part set out in Schedule 3 to these Regulations.

*Carl Sargeant*

Minister for Natural Resources, one of the Welsh  
Minister

21 March 2016

# SCHEDULE 1

Regulation 5

## “PART 3

### Radioactive substances parameters

**TABLE D**

**Parametric values for radon, tritium and ID of water intended for human consumption**

<i>Parameters</i>	<i>Maximum concentration or value</i>	<i>Units of measurement</i>
Indicative dose (for radioactivity)	0,10	mSv
Radon <sup>(i)</sup>	100	Bq/l
Tritium (for radioactivity) <sup>(ii)</sup>	100	Bq/l

<sup>(i)</sup> Enforcement action by the local authority is deemed justified on radiological protection grounds without further consideration where radon concentrations exceed 1,000 Bq/l.

<sup>(ii)</sup> If tritium concentration exceeds its parametric value, an investigation (which may include analysis) of the presence of artificial radionuclides must be carried out.”



## SCHEDULE 2

Regulation 7

### “SCHEDULE 2A

Regulation 10A

## Monitoring of radioactive substances

### Radon

1.—(1) In relation to the radon parameter in the radioactive substances parameters table, a local authority—

- (a) must ensure that a representative survey is carried out in accordance with sub-paragraph (2) to determine the likelihood of a supply failing to comply with the relevant parametric concentration or value specified in the radioactive substances parameters table; and
- (b) must carry out monitoring where there is reason to believe, on the basis of the results of the representative surveys or other reliable information, including any risk assessment carried out in accordance with regulation 6, that the parametric value for the radon parameter laid down in the radioactive substances parameters table might be exceeded.

(2) A representative survey must be designed in such a way—

- (a) as to be capable of determining the scale and nature of likely exposure to radon in water intended for human consumption originating from different types of groundwater sources and wells in different geological areas; and
- (b) that underlying parameters, 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.

### Tritium

2.—(1) In relation to the tritium parameter in the radioactive substances parameters table, a local authority—

- (a) must carry out monitoring 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, including any risk assessment carried out in accordance with regulation 6, that the level of tritium is below the parametric value listed in the radioactive substances parameters table; and
- (b) must carry out an investigation of the presence of other artificial radionuclides if the concentration of tritium exceeds the parametric value listed in the radioactive substances parameters table.

(2) Where monitoring is required by sub-paragraph (1)—

- (a) it must be carried out at the frequencies as set out for audit monitoring in Table 3 in Part 2 of Schedule 2; or
- (b) it must (in the case of a private water supply falling within the scope of regulation 10(1)) be carried out at least every five years or more frequently if the risk assessment referred to under sub-paragraph (1)(a) shows this to be necessary.

### **Indicative Dose**

**3.**—(1) In relation to the indicative dose (“ID”) parameter in the radioactive substances parameters table, a local authority must carry out monitoring where a source of artificial radioactivity or elevated natural radioactivity is present and it cannot be shown on the basis of other surveillance programmes or investigations, including any risk assessment carried out in accordance with regulation 6, that the level of ID is below the parametric value listed in the radioactive substances parameters table.

(2) Where monitoring is required by sub-paragraph (1) in relation to artificial radionuclides—

- (a) it must be carried out at the frequencies as set out for audit monitoring in Table 3 in Part 2 of Schedule 2;
- (b) it must (in the case of a private water supply falling within the scope of regulation 10(1)) be carried out at least every five years and more frequently if the risk assessment shows this to be necessary.

(3) Where monitoring is required by sub-paragraph (1) in relation to a source of elevated natural radioactivity—

- (a) the local authority—
  - (i) may decide the frequency of monitoring in its area depending on the screening strategy adopted by the authority; and
  - (ii) must notify the Welsh Ministers in writing of its decision under sub-paragraph (i); and
- (b) the frequency of monitoring decided under sub-paragraph (a)(i) may vary from a single check measurement to the frequencies as set out for audit monitoring in Table 3 in Part 2 of Schedule 2.

(4) Where a local authority decides under sub-paragraph (3) that a single check measurement for natural radioactivity is appropriate, the local authority must carry out a further check if any change occurs in relation to the supply which is likely to influence the concentrations of radionuclides in the supply.

### **Water treatment**

**4.** Where treatment to reduce the level of radionuclides in a private water supply has been undertaken, the local authority must monitor the supply for total indicative dose, radon and tritium in accordance with the provisions of this Part and the frequencies as set out for audit monitoring in Table 3 in Part 2 of Schedule 2 to verify the continued efficacy of that treatment.

### **Averaging**

**5.** Where a parametric value in the radioactive substances parameters table is exceeded in relation to a particular sample taken by a local authority, the Welsh Ministers must specify, by notice in writing to the local authority, the extent of resampling necessary to ensure that the measured values are representative of an average activity concentration for a full year.”

## SCHEDULE 3

Regulation 8

### “PART 3

#### Monitoring for indicative dose and analytical performance characteristics

##### **Monitoring for compliance with the indicative dose**

5. A local authority may use reliable screening strategies to indicate the presence of radioactivity in water intended for human consumption.

6. The strategies referred to in paragraph 5 may include screening for–

- (a) certain radionuclides or individual radionuclide; or
- (b) gross alpha activity or gross beta activity (where appropriate gross beta activity may be replaced by residual beta activity after subtraction of the K-40 activity concentration).

##### **Screening for certain radionuclides, or screening for an individual radionuclide**

7. If one of the activity concentrations exceeds 20% of the corresponding derived value or the tritium concentration exceeds its parametric value listed in Part 3 of Schedule 1 an analysis of additional radionuclides is required.

8. A local authority must, in deciding which radionuclides require to be measured for each supply, take into account all relevant information about likely sources of radioactivity.

##### **Screening strategies for gross alpha activity and gross beta activity**

9. Subject to paragraph 10 the recommended screening values are–

- (a) 0,1Bq/l for gross alpha activity; and
- (b) 1,0Bq/l for gross beta activity.

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

11. The Welsh Ministers may set alternative screening levels for gross alpha activity and gross beta activity where it can be demonstrated by the local authority that the alternative levels are in compliance with an indicative dose of 0,1 mSv.

12. The radionuclides to be measured must be based on all relevant information about likely sources of radioactivity.

##### **Calculation of the indicative dose**

12. The indicative dose must be calculated from–

- (a) the measured radionuclide concentrations and the dose coefficients laid down in Annex III, Table A of Directive 96/29/Euratom(1); or
- (b) more recent information recognised by the Welsh Ministers, on the basis of the annual intake of water (730 l for adults).

13. Where the following formula is satisfied, it can be assumed that the indicative dose is less than the parametric value of 0,1 mSv and no further investigation is required–

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(1) OJ No. L 159, 29.6.1996, p. 1.

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

where:

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

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

$n$  = number of radionuclides detected.

**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
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 Welsh Ministers.

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

### Performance characteristics and methods of analysis

**14.** 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/1	Note 3
Radon	10 Bq/1	Note 3
gross alpha	0,04 Bq/1	Note 4
gross beta	0,4 Bq/1	Note 4
U-238	0,02 Bq/1	
U-234	0,02 Bq/1	
Ra-226	0,04 Bq/1	
Ra-228	0,02 Bq/1	Note 5
Pb-210	0,02 Bq/1	
Po-210	0,01 Bq/1	
C-14	20 Bq/1	
Sr-90	0,4 Bq/1	
Pu-239/Pu-240	0,04 Bq/1	
Am-241	0,06 Bq/1	
Co-60	0,5 Bq/1	
Cs-134	0,5 Bq/1	
Cs-137	0,5 Bq/1	
I-131	0,5 Bq/1	

Note 1: The limit of detection must be calculated according to the ISO standard 11929: Determination of the characteristic limits (decision threshold, detection limit, and limits of 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 must be calculated and reported as complete standard uncertainties, or as expanded uncertainties with an expansion factor of 1,96 according 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/1.

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/1 respectively.

Note 5: This limit of detection applies only to initial screening for indicative dose 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.”