

## SCHEDULE 1

Regulation 2(1) and (4)

## PRESCRIBED CONCENTRATIONS AND VALUES

## TABLE A

## MICROBIOLOGICAL PARAMETERS

<i>(1) Item</i>	<i>(2) Parameter</i>	<i>(3) Concentration or value (maximum)</i>	<i>(4) Units of measurement</i>	<i>(5) Point of compliance</i>
Part 1				
1.	Enterococci	0	Number/100ml	Consumer's tap
2.	<i>Escherichia coli</i>	0	Number/100ml	Consumer's tap
<b>Part 2<sup>1</sup></b>				
3.	Coliform bacteria	0	Number/100ml	Service reservoir <sup>2</sup>
		0	Number/100ml	Treatment works
4.	<i>Escherichia coli</i>	0	Number/100ml	Service reservoir
		0	Number/100ml	Treatment works

Notes—

<sup>1</sup> The parametric values in Part 2 are not required to protect human health (since the parametric values in Part 1 are sufficient for that purpose). The values in Part 2 are not therefore set for the purposes of Article 5(3) of the Directive.

<sup>2</sup> Compliance required as to 95% of samples from each service reservoir (regulation 4(4)).

## TABLE B

## CHEMICAL PARAMETERS

<i>(1) Item</i>	<i>(2) Parameter</i>	<i>(3) Concentration or value (maximum)</i>	<i>(4) Units of measurement</i>	<i>(5) Point of compliance</i>
Part 1				
1.	Acrylamide <sup>1</sup>	0.10	µg/l	Consumer's tap
2.	Antimony	5.0	µgSb/l	Consumer's tap
3.	Arsenic	10	µgAs/l	Consumer's tap
4.	Benzene	1.0	µg/l	Consumer's tap

<sup>1</sup> The parametric value refers to the residual monomer concentration in the water as calculated according to specifications of the maximum release from the corresponding polymer in contact with the water. This is controlled by product specification.

<sup>2</sup> See also regulation 6(6).

<sup>3</sup> See also regulation 4(2)(c).

<sup>4</sup> The corresponding parametric value applies to each 'other pesticide' individually.

<sup>5</sup> The parametric values in this Part are not required to protect human health (since the parametric values in Part 1 are sufficient for that purpose). The values in Part 2 are not therefore set for the purposes of Article 5(3) of the Directive.

**Status:** Point in time view as at 28/11/2015.

**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

5.	Benzo(a)pyrene	0.010	µg/l	Consumer's tap
6.	Boron	1.0	mgB/l	Consumer's tap
7.	Bromate	10	µgBrO <sub>3</sub> /l	Consumer's tap
8.	Cadmium	5.0	µgCd/l	Consumer's tap
9.	Chromium	50	µgCr/l	Consumer's tap
10.	Copper <sup>2</sup>	2.0	mgCu/l	Consumer's tap
11.	Cyanide	50	µgCN/l	Consumer's tap
12.	1,2-dichloroethane	3.0	µg/l	Consumer's tap
13.	Epichlorohydrin <sup>1</sup>	0.10	µg/l	Consumer's tap
14.	Fluoride	1.5	mgF/l	Consumer's tap
15.	Lead <sup>2</sup>	10	µgPb/l	Consumer's tap
16.	Mercury	1.0	µgHg/l	Consumer's tap
17.	Nickel <sup>2</sup>	20	µgNi/l	Consumer's tap
18.	Nitrate <sup>3</sup>	50	mgNO <sub>3</sub> /l	Consumer's tap
19.	Nitrite <sup>3</sup>	0.50	mgNO <sub>2</sub> /l	Consumer's tap
		0.10	mgNO <sub>2</sub> /l	Treatment works
20.	Pesticide—			
	Aldrin	0.030	µg/l	Consumer's tap
	Dieldrin	0.030	µg/l	Consumer's tap
	Heptachlor	0.030	µg/l	Consumer's tap
	Heptachlor epoxide	0.030	µg/l	Consumer's tap
	Other pesticide <sup>4</sup>	0.10	µg/l	Consumer's tap
21.	Pesticides: Total	0.50	µg/l	Consumer's tap
22.	PAH: Total	0.10	µg/l	Consumer's tap
23.	Selenium	10	µgSe/l	Consumer's tap
24.	Tetrachloroethene and Trichloroethene	10	µg/l	Consumer's tap
25.	THM: Total	100	µg/l	Consumer's tap

<sup>1</sup> The parametric value refers to the residual monomer concentration in the water as calculated according to specifications of the maximum release from the corresponding polymer in contact with the water. This is controlled by product specification.

<sup>2</sup> See also regulation 6(6).

<sup>3</sup> See also regulation 4(2)(c).

<sup>4</sup> The corresponding parametric value applies to each 'other pesticide' individually.

<sup>5</sup> The parametric values in this Part are not required to protect human health (since the parametric values in Part 1 are sufficient for that purpose). The values in Part 2 are not therefore set for the purposes of Article 5(3) of the Directive.

26.	Vinyl chloride <sup>1</sup>	0.50	µg/l	Consumer's tap
Part 2 <sup>5</sup>				
27.	Aluminium	200	µgAl/l	Consumer's tap
28.	Colour	20	mg/l Pt/Co	Consumer's tap
29.	Iron	200	µgFe/l	Consumer's tap
30.	Manganese	50	µgMn/l	Consumer's tap
31.	Sodium	200	mgNa/l	Consumer's tap
32.	Tetrachloromethane	3	µg/l	Consumer's tap
33.	Turbidity	4	NTU	Consumer's tap

## Notes—

<sup>1</sup> The parametric value refers to the residual monomer concentration in the water as calculated according to specifications of the maximum release from the corresponding polymer in contact with the water. This is controlled by product specification.

<sup>2</sup> See also regulation 6(6).

<sup>3</sup> See also regulation 4(2)(c).

<sup>4</sup> The corresponding parametric value applies to each 'other pesticide' individually.

<sup>5</sup> The parametric values in this Part are not required to protect human health (since the parametric values in Part 1 are sufficient for that purpose). The values in Part 2 are not therefore set for the purposes of Article 5(3) of the Directive.

**TABLE C**  
**INDICATOR PARAMETERS**

<b>(1) Item</b>	<b>(2) Parameter</b>	<b>(3) Concentration or value (maximum) or state</b>	<b>(4) Units of measurement</b>	<b>(5) Point of monitoring</b>
Part 1				
1.	Ammonium	0.50	mgNH <sub>4</sub> /l	Consumer's tap
2.	Chloride <sup>1</sup>	250	mgCl/l	Supply point <sup>2</sup>
3.	<i>Clostridium perfringens</i> (including spores)	0	Number/100ml	Supply point <sup>2</sup>
4.	Coliform bacteria	0	Number/100ml	Consumer's tap

<sup>1</sup> The water should not be aggressive.

<sup>2</sup> In the event that the use of samples from a point within a water supply zone has not been authorised for this parameter under regulation 8, the point of monitoring is instead the consumer's tap.

<sup>3</sup> This value, in so far as the point of monitoring is a service reservoir, is not set for the purposes of Article 5(3) of the Directive.

<sup>4</sup> This value, in so far as the point of monitoring is a treatment works, is not set for the purposes of Article 5(3) of the Directive.

<sup>15</sup> Remedial action is to be deemed justified on radiological protection grounds, without further consideration, where radon concentrations exceed 1,000 Bq/l.]

<sup>16</sup> If the concentration of tritium exceeds this value, an analysis of the presence of other artificial radionuclides must be also carried out by Scottish Water.]

**Status:** Point in time view as at 28/11/2015.

**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

5.	Colony count	No abnormal change	Number/1ml at 22°C and at 37°C	Consumer's tap Service reservoir <sup>3</sup> Treatment works <sup>4</sup>
6.	Colour	Acceptable to consumers and no abnormal change		Consumer's tap
7.	Conductivity <sup>1</sup>	2500	µS/cm at 20°C	Supply point <sup>2</sup>
8.	Hydrogen ion	9.5 6.5 (minimum)	pH value	Consumer's tap
9.	Odour	Acceptable to consumers and no abnormal change		Consumer's tap
10.	Sulphate <sup>1</sup>	250	mgSO <sub>4</sub> /l	Supply point <sup>2</sup>
11.	Taste	Acceptable to consumers and no abnormal change		Consumer's tap
12.	Total organic carbon	No abnormal change	mgC/l	Supply point <sup>2</sup>
13.	Turbidity	1	NTU	Treatment works
Part 2				
14.	Indicative dose	0.10	mSv F2 ...	Supply point <sup>2</sup>
[ <sup>F3</sup> 14A.	Radon <sup>5</sup>	100	Bq/l	Supply point <sup>(b)1</sup>
15.	Tritium [ <sup>F4</sup> (f)]	100	Bq/l	Supply point <sup>2</sup>

Notes—

<sup>1</sup> The water should not be aggressive.

<sup>2</sup> In the event that the use of samples from a point within a water supply zone has not been authorised for this parameter under regulation 8, the point of monitoring is instead the consumer's tap.

<sup>3</sup> This value, in so far as the point of monitoring is a service reservoir, is not set for the purposes of Article 5(3) of the Directive.

<sup>4</sup> This value, in so far as the point of monitoring is a treatment works, is not set for the purposes of Article 5(3) of the Directive.

[<sup>F5</sup> Remedial action is to be deemed justified on radiological protection grounds, without further consideration, where radon concentrations exceed 1,000 Bq/l.]

[<sup>F6</sup> If the concentration of tritium exceeds this value, an analysis of the presence of other artificial radionuclides must be also carried out by Scottish Water.]

### Textual Amendments

- F1** Words in sch. 1 inserted (28.11.2015) by [The Private and Public Water Supplies \(Miscellaneous Amendments\) \(Scotland\) Regulations 2015 \(S.S.I. 2015/346\)](#), regs. 1(1), **16(b)**

<b>F2</b>	Word in sch. 1 omitted (28.11.2015) by virtue of <a href="#">The Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015 (S.S.I. 2015/346)</a> , regs. 1(1), <b>16(a)(i)</b>
<b>F3</b>	Sch. 1 entry inserted (28.11.2015) by <a href="#">The Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015 (S.S.I. 2015/346)</a> , regs. 1(1), <b>16(a)(ii)</b>
<b>F4</b>	Word in sch. 1 inserted (28.11.2015) by <a href="#">The Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015 (S.S.I. 2015/346)</a> , regs. 1(1), <b>16(a)(iii)</b>

In this Schedule—

<sup>F5</sup>  
...

“NTU” means Nephelometric Turbidity Unit;

“PAH: Total” means the sum of the concentrations of the following polyaromatic hydrocarbons: benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene;

“Pesticide” means an organic insecticide, herbicide, fungicide, nematocide, acaricide, algicide, rodenticide, slimicide, molluscicide or related product (including a growth regulator), and includes the relevant metabolites, degradation and reaction products of that pesticide;

“Pesticides: Total” refers to the sum of the concentrations of each pesticide detected and quantified in the monitoring procedure;

“Tetrachloroethene and Trichloroethene” means the sum of the concentrations of tetrachloroethene and trichloroethene; and

“THM: Total” means the sum of the concentrations of the following trihalomethanes: chloroform, bromoform, dibromochloromethane and bromodichloromethane.

**Textual Amendments**

**F5** Words in sch. 1 omitted (28.11.2015) by virtue of [The Private and Public Water Supplies \(Miscellaneous Amendments\) \(Scotland\) Regulations 2015 \(S.S.I. 2015/346\)](#), regs. 1(1), **16(c)**

**Textual Amendments**

**F5** Words in sch. 1 omitted (28.11.2015) by virtue of [The Private and Public Water Supplies \(Miscellaneous Amendments\) \(Scotland\) Regulations 2015 \(S.S.I. 2015/346\)](#), regs. 1(1), **16(c)**

SCHEDULE 2

Regulations 2(1), 2(4), 9 and 11

MONITORING

TABLE 1

PARAMETERS AND CIRCUMSTANCES FOR CHECK MONITORING

<i>(1) Item</i>	<i>(2) Parameter</i>	<i>(3) Circumstances</i>
1.	Aluminium	When used as flocculant or where the water originates from, or is influenced by, surface waters.

**Status:** Point in time view as at 28/11/2015.

**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

2.	Ammonium	
3.	<i>Clostridium perfringens</i> (including spores)	Where the water originates from, or is influenced by, surface waters.
4.	Coliform bacteria	
5.	Colony count	
6.	Colour	
7.	Conductivity	
8.	Escherichia coli	
9.	Hydrogen ion	
10.	Iron	When used as flocculant or where the water originates from, or is influenced by, surface waters.
11.	Manganese	Where the water originates from, or is influenced by, surface waters.
12.	Nitrate	When chloramination is practised.
13.	Nitrite	When chloramination is practised.
14.	Odour	
15.	Taste	
16.	Turbidity	

**TABLE 2**

**ANNUAL SAMPLING FREQUENCIES: SAMPLING POINTS<sup>M1</sup>**

<b>(1) Item</b>	<b>(2) Parameter</b>	<b>(3) Estimated population of water supply zone</b>	<b>(4) Reduced</b>	<b>(5) Standard</b>
<i>Subject to check monitoring</i>				
1.	Coliform bacteria	< 100	–	4
2.	<i>Escherichia coli</i>	≥100	–	12 per 5,000 population <sup>4</sup>
3.	Residual disinfectant			
4.	Aluminium <sup>1</sup>	< 100	1	2

<sup>1</sup> Sampling at the frequencies specified in this table for check monitoring is required only when the circumstances for this parameter in column (3) of Table 1 apply (see regulation 6(4)(b)). Where this is not the case, sampling at the frequencies specified in this table for audit monitoring is required instead.

<sup>2</sup> Subject to note (e), samples for this parameter may, to the extent authorised under regulation 8 for a water supply zone, be taken from alternative supply points in accordance with regulation 9(1)(b).

<sup>3</sup> Only those pesticides which are likely to be present in a given supply need to be monitored.

<sup>4</sup> Where the population is not an exact multiple of 5,000, the population figure should be rounded up to the nearest multiple of 5,000.

<sup>5</sup> If sodium hypochlorite is added after water has left a treatment works in the water supply zone, monitoring for this parameter must be carried out at sampling points (rather than at supply points).

**Status:** Point in time view as at 28/11/2015.**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

5.	Ammonium	100-4,999	2	4
6.	<i>Clostridium perfringens</i> (including spores) <sup>12</sup>	5,000-9,999 10,000-29,999	6 12	12 24
7.	Colony count	30,000-49,999	18	36
8.	Colour	50,000-79,999	26	52
9.	Conductivity <sup>2</sup>	80,000-100,000	38	76
10.	Hydrogen ion			
11.	Iron <sup>1</sup>			
12.	Manganese <sup>1</sup>			
13.	Nitrate <sup>1</sup>			
14.	Nitrite <sup>1</sup>			
15.	Odour			
16.	Taste			
17.	Turbidity			
<i>Subject to audit monitoring</i>				
18.	Antimony	< 100	–	1
19.	Arsenic	100-4,999	–	4
20.	Benzene <sup>2</sup>	5,000-100,000	–	8
21.	Benzo(a)pyrene			
22.	Boron <sup>2</sup>			
23.	Bromate <sup>25</sup>			
24.	Cadmium			
25.	Chloride <sup>2</sup>			
26.	Chromium			
27.	Copper			
28.	Cyanide <sup>2</sup>			
29.	1,2-dichloroethane <sup>2</sup>			

<sup>1</sup> Sampling at the frequencies specified in this table for check monitoring is required only when the circumstances for this parameter in column (3) of Table 1 apply (see regulation 6(4)(b)). Where this is not the case, sampling at the frequencies specified in this table for audit monitoring is required instead.

<sup>2</sup> Subject to note (e), samples for this parameter may, to the extent authorised under regulation 8 for a water supply zone, be taken from alternative supply points in accordance with regulation 9(1)(b).

<sup>3</sup> Only those pesticides which are likely to be present in a given supply need to be monitored.

<sup>4</sup> Where the population is not an exact multiple of 5,000, the population figure should be rounded up to the nearest multiple of 5,000.

<sup>5</sup> If sodium hypochlorite is added after water has left a treatment works in the water supply zone, monitoring for this parameter must be carried out at sampling points (rather than at supply points).

**Status:** Point in time view as at 28/11/2015.

**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

- 30. Enterococci
- 31. Fluoride<sup>2</sup>
- 32. Lead
- 33. Mercury<sup>2</sup>
- 34. Nickel
- 35. Pesticide<sup>23</sup>
- 36. PAH: Total
- 37. Selenium
- 38. Sodium
- 39. Sulphate<sup>2</sup>
- 40. Tetrachloroethene and Trichloroethene<sup>2</sup>
- 41. Tetrachloromethane<sup>2</sup>
- 42. THM: Total
- 43. Total organic carbon<sup>2</sup>
- [<sup>F6</sup>44. Indicative dose<sup>2</sup>
- 44A. Radon<sup>21</sup>
- 45. Tritium<sup>2</sup>

Notes—

<sup>1</sup> Sampling at the frequencies specified in this table for check monitoring is required only when the circumstances for this parameter in column (3) of Table 1 apply (see regulation 6(4)(b)). Where this is not the case, sampling at the frequencies specified in this table for audit monitoring is required instead.

<sup>2</sup> Subject to note (e), samples for this parameter may, to the extent authorised under regulation 8 for a water supply zone, be taken from alternative supply points in accordance with regulation 9(1)(b).

<sup>3</sup> Only those pesticides which are likely to be present in a given supply need to be monitored.

<sup>4</sup> Where the population is not an exact multiple of 5,000, the population figure should be rounded up to the nearest multiple of 5,000.

<sup>5</sup> If sodium hypochlorite is added after water has left a treatment works in the water supply zone, monitoring for this parameter must be carried out at sampling points (rather than at supply points).

**Textual Amendments**

**F6** Sch. 2 entry substituted (28.11.2015) by [The Private and Public Water Supplies \(Miscellaneous Amendments\) \(Scotland\) Regulations 2015 \(S.S.I. 2015/346\)](#), regs. 1(1), **17(a)**

**Marginal Citations**

**M1** This table specifies the number of samples to be taken at sampling points for the purposes of regulation 9(1)(a) and (2).



TABLE 3

ANNUAL SAMPLING FREQUENCIES: SUPPLY POINTS <sup>M2</sup>

(1) Item	(2) Parameter	(3) Volume of water supplied m <sup>3</sup> /d	(4) Reduced	(5) Standard
<i>Subject to check monitoring</i>				
1.	<i>Clostridium perfringens</i> (including spores) <sup>1</sup>	< 20	–	2
		20-999	2	4
2.	Conductivity	1,000-1,999	6	12
		2,000-5,999	12	24
		6,000-9,999	18	36
		10,000-15,999	26	52
		16,000-32,999	52	104
		33,000-49,999	78	156
		50,000-67,999	104	208
		68,000-84,999	130	260
		85,000-101,999	156	312
		102,000-119,999	183	365
		120,000-241,999	365	730
		242,000-484,999	730	1,460
		485,000-728,999	1,095	2,190
<i>Subject to audit monitoring</i>				
3.	Benzene	< 20	–	1
4.	Boron	20-999	–	4
5.	Bromate <sup>2</sup>	1,000-49,999	–	8
6.	Chloride	50,00-89,999	–	12
7.	Cyanide	90,000-299,999	–	24
8.	1,2-dichloroethane	300,000-649,999	–	36
9.	Fluoride	≥ 650,000	–	48
10.	Mercury			
11.	Pesticide <sup>3</sup>			

<sup>1</sup> Sampling at the frequencies specified in this table for check monitoring is required only where the water originates from, or is influenced by, surface waters (see Table 1). Where this is not the case, sampling at the frequencies specified in this table for audit monitoring is required instead.

<sup>2</sup> If sodium hypochlorite is added after water has left a treatment works in the water supply zone, audit monitoring for this parameter must be carried out at sampling points (rather than at supply points).

<sup>3</sup> Only those pesticides which are likely to be present in a given supply need to be monitored.

**Status:** Point in time view as at 28/11/2015.

**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

12. Sulphate
13. Tetrachloroethene and Trichloroethene
14. Tetrachloromethane
15. Total organic carbon
- [<sup>F7</sup>16. Indicative dose
- 16A. Radon]
17. Tritium

Notes—

<sup>1</sup> Sampling at the frequencies specified in this table for check monitoring is required only where the water originates from, or is influenced by, surface waters (see Table 1). Where this is not the case, sampling at the frequencies specified in this table for audit monitoring is required instead.

<sup>2</sup> If sodium hypochlorite is added after water has left a treatment works in the water supply zone, audit monitoring for this parameter must be carried out at sampling points (rather than at supply points).

<sup>3</sup> Only those pesticides which are likely to be present in a given supply need to be monitored.

#### Textual Amendments

**F7** Sch. 2 entry substituted (28.11.2015) by [The Private and Public Water Supplies \(Miscellaneous Amendments\) \(Scotland\) Regulations 2015 \(S.S.I. 2015/346\)](#), regs. 1(1), **17(b)**

#### Marginal Citations

**M2** This table specifies the number of samples to be taken at supply points for the purposes of regulation 9(1) (b) and (2).

**TABLE 4**

### ANNUAL SAMPLING FREQUENCIES: TREATMENT WORKS <sup>M3</sup>

(1) Item	(2) Parameter	(3) Volume of water supplied m <sup>3</sup> /d	(4) Reduced	(5) Standard
<i>Subject to check monitoring</i>				
1.	Coliform bacteria	< 20	—	4
2.	Colony count	20-1,999	12	52
3.	<i>Escherichia coli</i>	2,000-5,999	52	104
4.	Residual disinfectant	6,000-11,999 ≥12,000	104 208	208 365
5.	Nitrite <sup>1</sup>	< 20	—	2
6.	Turbidity	20-999 1,000-1,999	2 6	4 12

<sup>1</sup> Sampling at the frequencies specified in this table for check monitoring is required only when chloramination is practised. When this is not the case, this parameter must be sampled instead at the frequencies specified in this table for audit monitoring.

**Status:** Point in time view as at 28/11/2015.**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

2,000-5,999	12	24
6,000-9,999	18	36
10,000-15,999	26	52
16,000-32,999	52	104
33,000-49,999	78	156
50,000-67,999	104	208
68,000-84,999	130	260
85,000-101,999	156	312
102,000-119,999	183	365
120,000-241,999	365	730
242,000-484,999	730	1,460
485,000-728,999	1,095	2,190

*Subject to audit monitoring*

7. Nitrite <sup>1</sup>	< 20	–	1
	20-999	–	4
	1,000-49,999	–	8
	50,000-89,999	–	12
	90,000-299,999	–	24
	300,000-649,999	–	36
	≥650,000	–	48

Notes—

<sup>1</sup> Sampling at the frequencies specified in this table for check monitoring is required only when chloramination is practised. When this is not the case, this parameter must be sampled instead at the frequencies specified in this table for audit monitoring.

**Marginal Citations**

**M3** This table specifies the number of samples to be taken at treatment works for the purposes of regulation 11.

In this Schedule <sup>F8</sup>... “Pesticide”, “PAH: Total”, “Tetrachloroethene and Trichloroethene” and “THM: Total” have the same meanings as they have in Schedule 1.

**Textual Amendments**

**F8** Words in sch. 2 omitted (28.11.2015) by virtue of [The Private and Public Water Supplies \(Miscellaneous Amendments\) \(Scotland\) Regulations 2015 \(S.S.I. 2015/346\)](#), regs. 1(1), 17(e)

*Status: Point in time view as at 28/11/2015.*

*Changes to legislation: There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)*

#### Textual Amendments

- F8** Words in sch. 2 omitted (28.11.2015) by virtue of [The Private and Public Water Supplies \(Miscellaneous Amendments\) \(Scotland\) Regulations 2015 \(S.S.I. 2015/346\)](#), regs. 1(1), **17(c)**

## [<sup>F9</sup>SCHEDULE 2A

Regulation 6(6A)

### MONITORING OF RADIOACTIVE SUBSTANCES

#### Textual Amendments

- F9** Sch. 2A inserted (28.11.2015) by [The Private and Public Water Supplies \(Miscellaneous Amendments\) \(Scotland\) Regulations 2015 \(S.S.I. 2015/346\)](#), regs. 1(1), **18**

#### General principles and monitoring frequencies

1.—(1) Subject to sub-paragraphs (2) and (3), Scottish Water must monitor the water it supplies, or intends to supply, for human consumption purposes for—

- (a) indicative dose (item 14) in Table C;
- (b) radon (item 14A) in Table C; and
- (c) tritium (item 15) in Table C.

(2) Where the Scottish Ministers, by notice to Scottish Water, confirm that they have established that indicative dose, radon or, as the case may be, tritium (“the parameter”) is not likely to be present, for a period specified in the notice, in a supply of water for human consumption purposes in concentrations which could exceed the prescribed concentration or value for that parameter, Scottish Water is not required to monitor the supply for the parameter during the period specified in the notice.

(3) In case of naturally occurring radionuclides—

- (a) where previous results show that the concentration of radionuclides in the supply is stable, the minimum sampling and analysis frequencies are to be decided by the Scottish Ministers, and confirmed by notice to Scottish Water, taking into consideration the risk to human health; and
- (b) where the Scottish Ministers, by notice to Scottish Water, confirm that they are satisfied (on the basis of representative surveys, monitoring data or other reliable information) that levels of radon, tritium and the calculated indicative dose in a supply of water for human consumption purposes will, for a period specified in the notice, remain below the prescribed concentration or value for each parameter, Scottish Water is not required to monitor the supply for these parameters during the period specified in the notice.

(4) Where sub-paragraph (3)(b) applies, the Scottish Ministers must communicate the grounds for the decision to the European Commission and provide the Commission with the necessary documentation supporting that decision, including the findings of any surveys, monitoring or investigations carried out.

#### Radon

2.—(1) Subject to paragraphs 5 and 6, Scottish Water must ensure that representative surveys are undertaken to determine the scale and nature of likely exposures to radon in water it supplies,

or intends to supply, for human consumption purposes originating from different types of ground water sources and wells in different geological areas.

(2) The surveys must be designed in such a way that underlying factors, 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.

(3) Monitoring of radon concentrations must be carried out if Scottish Water has reason to believe, on the basis of the results of the representative surveys or other reliable information, that the prescribed concentration or value for radon might be exceeded.

### **Tritium**

**3.—**(1) Subject to paragraphs 5 and 6, Scottish Water must monitor the water it supplies, or intends to supply, for human consumption purposes for tritium where—

- (a) an anthropogenic source of tritium or other artificial radionuclides is present within the catchment area for the supply; and
- (b) it cannot be shown on the basis of other surveillance programmes or investigations that the level of tritium is below the prescribed concentration or value for tritium.

(2) Where monitoring for tritium is required by sub-paragraph (1), samples must be taken in accordance with regulation 9(1) and (4).

(3) If the concentration of tritium in any such sample exceeds the prescribed concentration or value for tritium, Scottish Water must carry out an investigation of the presence of other artificial radionuclides.

### **Indicative dose**

**4.—**(1) Subject to paragraphs 5 and 6, Scottish Water must monitor the water it supplies, or intends to supply, for human consumption purposes for indicative dose where—

- (a) a source of artificial radioactivity or elevated natural radioactivity is present; and
- (b) it cannot be shown on the basis of other representative monitoring programmes or other investigations that the level of indicative dose is below the prescribed concentration or value for that parameter.

(2) Where sub-paragraph (1) requires monitoring (of radionuclide levels) only in relation to a source of artificial radioactivity, samples must be taken in accordance with regulation 9(1) and (4).

(3) Where sub-paragraph (1) requires monitoring (of radionuclide levels) in relation to a source of elevated natural radioactivity, the Scottish Ministers must specify, by notice to Scottish Water, the frequency of the monitoring required of—

- (a) gross alpha activity;
- (b) gross beta activity; or
- (c) individual natural radionuclides,

for screening strategies pursuant to regulation 6(6A)(b) and Schedule 3A.

(4) Where sub-paragraph (3) applies, the frequency specified may vary from a single check measurement to the frequency which would otherwise apply under regulation 9(1) and (4).

(5) Where a single check for natural radioactivity is specified under sub-paragraph (3), Scottish Water 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.

**Status:** Point in time view as at 28/11/2015.

**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

## Water treatment

5. Where Scottish Water supplies, or intends to supply, water for human consumption purposes which is treated to reduce the level of radionuclides, Scottish Water must monitor the supply for indicative dose, radon and tritium in accordance with regulation 9(1) and (4) to verify the continued efficacy of that treatment.

## Averaging

6. In circumstances where the prescribed concentration or value for indicative dose, radon or, as the case may be, tritium is exceeded in a sample taken in relation to a supply, or intended supply, of water by Scottish Water for human consumption purposes, the Scottish Ministers must specify, by notice to Scottish Water, the extent of resampling necessary to ensure that the measured values are representative of an average activity concentration for a full year.]

### SCHEDULE 3

Regulations 2(1), 2(4) and 15(5)

#### ANALYSIS: METHODS AND CAPABILITIES

#### TABLE M1

#### SPECIFIED PARAMETERS: ANALYTICAL METHOD TO BE USED

(1) Item	(2) Parameter	(3) Method
1.	<i>Clostridium perfringens</i> (including spores)	Membrane filtration followed by anaerobic incubation of the membrane on m-CP agar <sup>1</sup> at 44 ± 1°C for 21 ± 3 hours. Count opaque yellow colonies that turn pink or red after exposure to ammonium hydroxide vapours for 20 to 30 seconds.
2.	Coliform bacteria	ISO 9308-1
3.	Colony count 22°C enumeration of culturable microorganisms	— prEN ISO 6222
4.	Colony count 37°C enumeration of culturable microorganisms	— prEN 6222
5.	Enterococci	ISO 7899-2
6.	<i>Escherichia coli</i>	ISO 9308-1

Notes—

<sup>1</sup> The composition of m-CP agar is:

Basal medium—

Dissolve the ingredients of the basal medium, adjust pH to 7.6 and autoclave at 121°C for 15 minutes.

**TABLE M2****OTHER PARAMETERS: CAPABILITIES REQUIRED OF ANALYTICAL METHOD**

<b>(1) Item</b>	<b>(2) Parameter</b>	<b>(3) Trueness % of prescribed concentration or value</b>	<b>(4) Precision % of prescribed concentration or value</b>	<b>(5) Limit of detection % of prescribed concentration or value</b>
1.	Aluminium	10	10	10
2.	Ammonium	10	10	10
3.	Antimony	25	25	25
4.	Arsenic	10	10	10
5.	Benzene	25	25	25
6.	Benzo(a)pyrene	25	25	25
7.	Boron	10	10	10
8.	Bromate	25	25	25
9.	Cadmium	10	10	10
10.	Chloride	10	10	10
11.	Chromium	10	10	10
12.	Colour	10	10	10
13.	Conductivity	10	10	10
14.	Copper	10	10	10
15.	Cyanide <sup>1</sup>	10	10	10
16.	1,2-dichloroethane	25	25	10
17.	Fluoride	10	10	10
18.	Iron	10	10	10
19.	Lead	10	10	10
20.	Manganese	10	10	10
21.	Mercury	20	10	20
22.	Nickel	10	10	10
23.	Nitrate	10	10	10

<sup>1</sup> The method of analysis should determine total cyanide in all forms.<sup>2</sup> The capabilities required apply in relation to each individual pesticide.<sup>3</sup> The capabilities required apply in relation to each individual substance comprising PAH: Total at 25% of the prescribed concentration or value for PAH: Total.<sup>4</sup> The capabilities required apply at 50% of the prescribed concentration or value for PAH: Total.<sup>5</sup> The capabilities required apply in relation to prescribed concentration or value in Table B.<sup>6</sup> The capabilities required apply in relation to prescribed concentration or value in Table C.

In this Schedule "Pesticide", "PAH: Total" and "THM: Total" have the meanings given in Schedule 1.

**Status:** Point in time view as at 28/11/2015.

**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

24.	Nitrite	10	10	10
25.	Pesticide <sup>2</sup>	25	25	25
26.	PAH: Total <sup>3</sup>	25	25	25
27.	Selenium	10	10	10
28.	Sodium	10	10	10
29.	Sulphate	10	10	10
30.	Tetrachloroethene <sup>4</sup>	25	25	10
31.	Tetrachloromethane	20	20	20
32.	Trichloroethene <sup>4</sup>	25	25	10
33.	THM: Total <sup>3</sup>	25	25	10
34.	Turbidity <sup>5</sup>	10	10	10
35.	Turbidity <sup>6</sup>	25	25	25

Notes—

<sup>1</sup> The method of analysis should determine total cyanide in all forms.

<sup>2</sup> The capabilities required apply in relation to each individual pesticide.

<sup>3</sup> The capabilities required apply in relation to each individual substance comprising PAH: Total at 25% of the prescribed concentration or value for PAH: Total.

<sup>4</sup> The capabilities required apply at 50% of the prescribed concentration or value for PAH: Total.

<sup>5</sup> The capabilities required apply in relation to prescribed concentration or value in Table B.

<sup>6</sup> The capabilities required apply in relation to prescribed concentration or value in Table C.

In this Schedule “Pesticide”, “PAH: Total” and “THM: Total” have the meanings given in Schedule 1.

## [<sup>F10</sup>SCHEDULE 3A

Regulation 6(6A)

### MONITORING FOR INDICATIVE DOSE AND ANALYTICAL PERFORMANCE CHARACTERISTICS

#### Textual Amendments

**F10** Sch. 3A inserted (28.11.2015) by [The Private and Public Water Supplies \(Miscellaneous Amendments\) \(Scotland\) Regulations 2015 \(S.S.I. 2015/346\)](#), regs. 1(1), **19**

#### Monitoring for compliance with the indicative dose

1.—(1) Scottish Water may use reliable screening strategies to indicate the presence of radioactivity in water it supplies, or intends to supply, for human consumption purposes.

(2) These strategies may include screening for—

- (a) certain radionuclides or an individual radionuclide; or
- (b) gross alpha activity or gross beta activity.



**Screening for certain radionuclides or for an individual radionuclide**

2.—(1) Where screening is carried out for certain radionuclides or for an individual radionuclide, Scottish Water must carry out an analysis of additional radionuclides if, in relation to any supply referred to in paragraph 1—

- (a) one of the activity concentrations of a radionuclide listed in column 2 of the table below exceeds 20% of the corresponding derived concentration in column 3; or
- (b) the tritium concentration exceeds the prescribed concentration or value for tritium.

(2) Scottish Water must, in deciding which radionuclides require to be measured for each supply, take into account all relevant information about likely sources of radioactivity.

<i>Derived concentrations for radioactivity in water intended for human consumption<sup>1</sup></i>		
<i>Origin</i>	<i>Radionuclide</i>	<i>Derived concentration (Bq/l)</i>
Natural	U-238 <sup>2</sup>	3.0
	U-234 <sup>2</sup>	2.8
	Ra-226	0.5
	Ra-228	0.2
	Pb-210	0.2
	Po-210	0.1
Artificial	C-14	240
	Sr-90	4.9
	Pu-239 / Pu-240	0.6
	Am-241	0.7
	Co-60	40
	Cs-134	7.2
	Cs-137	11
I-131	6.2	

Notes—

<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 litres and using the dose coefficients laid down in Table (A) of Annex III to Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation <sup>M4</sup>. Derived concentrations for other radionuclides may be calculated on the same basis.

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

**Marginal Citations**

**M4** OJ L 159, 29.6.1996, p. 1., as amended by Corrigendum (OJ L 314, 4.12.1996, p. 20).

**Status:** Point in time view as at 28/11/2015.

**Changes to legislation:** There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014. (See end of Document for details)

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

3.—(1) Scottish Water may use screening strategies for gross alpha activity and gross beta activity (or, where appropriate, residual beta activity after subtraction of the potassium-40 activity) to monitor a supply referred to in paragraph 1 for indicative dose.

(2) Subject to sub-paragraph (3), screening levels must be set at—

- (a) 0.1 Bq/l for gross alpha activity; and
- (b) 1.0 Bq/l for gross beta activity.

(3) Scottish Water may set alternative levels to those specified in sub-paragraph (2) if it can demonstrate that these will ensure that an indicative dose of 0.1 mSv is not exceeded.

(4) If the gross alpha activity is less than 0.1 Bq/l and the gross beta activity is less than 1.0 Bq/l, Scottish Water may assume that the indicative dose is less than 0.1 mSv.

(5) Where sub-paragraph (4) applies, Scottish Water is not required to carry out a radiological investigation unless it is aware—

- (a) that specific radionuclides are present in the water; and
- (b) that these are liable to cause an indicate dose in excess of 0.1 mSv.

(6) If the gross alpha activity exceeds 0.1 Bq/l or the gross beta activity exceeds 1.0 Bq/l, Scottish Water must carry out an analysis for specific radionuclides.

(7) Scottish Water must, in deciding which radionuclides require to be measured for the purposes of sub-paragraph (6), take into account all relevant information about likely sources of radioactivity.

(8) If elevated levels of tritium are detected in a sample, Scottish Water must also measure the gross alpha activity and gross beta activity in that sample.

### Calculation of the indicative dose

4.—(1) The indicative dose must be calculated from—

- (a) the measured radionuclide concentrations and the dose coefficients laid down in Table (A) of Annex III to Council Directive 96/29/Euratom <sup>M5</sup>; or
- (b) more recent information recognised by the Scottish Ministers,

on the basis of an annual intake of water of 730 litres for adults.

(2) Where the following formula is satisfied, Scottish Water may assume that the indicative dose is less than 0.1 mSv and that no further investigation is required—

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

where—

“ $C_i (obs)$ ” refers to the observed concentration of radionuclide “ $i$ ”;

“ $C_i (der)$ ” refers to derived concentration of radionuclide “ $i$ ”;

“ $n$ ” refers to the number of radionuclides detected.

#### Marginal Citations

**M5** Table (A) lays down ingestion dose coefficients for members of the public.

### Performance characteristics and methods of analysis

5. For each parameter or radionuclide listed in column 1 of the table below, the method of analysis used must be capable of measuring activity concentrations with at least the limit of detection specified for that parameter or radionuclide in column 2.

<i>Parameter / radionuclide</i>	<i>Limit of detection (in Bq/l)<sup>12</sup></i>
Tritium	10 <sup>3</sup>
Radon	10 <sup>3</sup>
gross alpha activity	0.04 <sup>4</sup>
gross beta activity	0.4 <sup>4</sup>
U-238	0.02
U-234	0.02
Ra-226	0.04
Ra-228	0.02 <sup>5</sup>
Pb-210	0.02
Po-210	0.01
C-14	20
Sr-90	0.4
Pu-239 / Pu-240	0.04
Am-241	0.06
Co-60	0.5
Cs-134	0.5
Cs-137	0.5
I-131	0.5
Notes—	

<sup>1</sup> The limit of detection must be calculated according to the ISO standard 11929:2010 entitled “*Determination of the characteristic limits (decision threshold, detection limit and limits of the confidence interval) for measurements of ionising radiation - Fundamentals and application*” (as it was first published), with probabilities of errors of 1st and 2nd kind of 0.05 each.

<sup>2</sup> Measurement uncertainties must be calculated and reported as complete standard uncertainties, or as expanded standard uncertainties with an expansion factor of 1.96, according to the ISO/IEC Guide 98-3:2008 entitled “*Guide to the expression of uncertainty in measurement*” (as it was first published).

<sup>3</sup> The limit of detection for tritium and for radon is 10% of the corresponding prescribed concentration or value for the parameter.

<sup>4</sup> The limit of detection for gross alpha activity and gross beta activities is 40% of the screening values of 0.1 Bq/l and 1.0 Bq/l respectively.

<sup>5</sup> This limit of detection applies only to initial screening for indicative dose for a new water source. If initial checking indicates that it is unlikely 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.]

**Status:**

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**Changes to legislation:**

There are currently no known outstanding effects for the The Public Water Supplies (Scotland) Regulations 2014.