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STATUTORY INSTRUMENTS

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**1996 No. 3047 (S.233)**

**WATER, SCOTLAND**

**The Surface Waters (Abstraction for Drinking Water) (Classification) (Scotland) Regulations 1996**

<i>Made</i>	- - - -	<i>3rd December 1996</i>
<i>Laid before Parliament</i>		<i>16th December 1996</i>
<i>Coming into force</i>	- -	<i>6th January 1997</i>

The Secretary of State, in exercise of the powers conferred on him by sections 30B and 41 of the Control of Pollution Act 1974<sup>(1)</sup>, and, being a Minister designated<sup>(2)</sup> for the purposes of section 2(2) of the European Communities Act 1972<sup>(3)</sup> in relation to measures relating to the prevention, reduction and elimination of pollution of water, in exercise of the powers conferred on him by that section, hereby makes the following Regulations:

**Citation, commencement, interpretation and extent**

1.—(1) These Regulations may be cited as the Surface Waters (Abstraction for Drinking Water) (Classification) (Scotland) Regulations 1996, shall come into force on 6th January 1997 and shall extend to Scotland only.

(2) In these Regulations—

“the 1975 Directive” means Council Directive [75/440/EEC](#)<sup>(4)</sup> concerning the quality of surface water intended for the abstraction of drinking water as amended by Council Directive [80/778/EEC](#)<sup>(5)</sup> and Council Directive [91/676/EEC](#)<sup>(6)</sup>;

“the 1979 Directive” means Council Directive [79/869/EEC](#)<sup>(7)</sup> concerning methods of measurement and frequencies of sampling and analysis of surface water intended for drinking water;

“SEPA” means the Scottish Environment Protection Agency;

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(1) [1974 c. 40](#): section 30B was inserted, as part of a substitution of a new Part II of the Act, by the Water Act [1989 \(c. 15\)](#) section 169 and Schedule 23, paragraph 4.

(2) [S.I. 1989/2393](#).

(3) [1972 c. 68](#).

(4) OJ No L194, 25.7.75 p26.

(5) OJ No L229, 30.8.80 p11.

(6) OJ No L375, 31.12.91 p1.

(7) OJ No L271, 29.10.79, p44.

“water authorities” has the same meaning as in section 62(1) of the Local Government etc (Scotland) Act 1994(8), and the “relevant water authority” is the water authority within whose area waters referred to in these Regulations are situated.

(3) Expressions used in these Regulations which are also used in the 1975 Directive or the 1979 Directive shall have the same meaning as in those Directives.

(4) In these Regulations any reference to the supply of water as drinking water shall be taken to be a reference to the supply of that water as drinking water after it has undergone purification treatment.

### **Classification of waters**

2. The classifications DW1, DW2 and DW3 and the criteria for those classifications set out in Schedule 1 shall apply for classifying inland waters by reference to their suitability for abstraction for supply as drinking water.

### **Guideline values**

3. In discharging their functions SEPA and the water authorities shall endeavour to respect the guideline values specified in Schedule 2 for waters of the relevant class.

### **No deterioration principle**

4. Implementation of measures taken pursuant to the 1975 Directive may under no circumstances lead directly or indirectly to deterioration of the current quality of surface water.

### **Compliance with relevant limits**

5.—(1) Subject to paragraphs (2) and (3) below, any waters classified under these Regulations shall be treated as complying with the limit specified in Schedule 1 for waters of the relevant class in relation to a parameter if—

- (a) 95 per cent of the samples taken in relation to those waters in accordance with regulation 9 comply with the limit;
- (b) none of the samples exceeds the limit by more than 50 per cent;
- (c) there is no danger to public health; and
- (d) consecutive samples taken at statistically suitable intervals do not exceed the limit.

(2) Non-compliant samples shall be ignored for the purposes of paragraph (1) above if they are the result of a flood, natural disaster or abnormal weather conditions.

(3) Paragraph (1)(b) above shall not apply in the case of the limits specified in Schedule 1 in relation to temperature.

### **Compliance with guideline values**

6.—(1) Subject to paragraphs (2) and (3) below, any waters classified under these Regulations shall be treated as complying with the limit specified in Schedule 2 for waters of the relevant class in relation to a parameter if—

- (a) 90 per cent of the samples taken in relation to the waters in accordance with regulation 9 below comply with the standard;
- (b) none of the samples fails the standard by more than 50 per cent;
- (c) there is no danger to public health; and

(d) consecutive samples taken at statistically suitable intervals do not exceed the standard.

(2) Non-compliant samples shall be ignored for the purposes of paragraph (1) above if they are the result of a flood, natural disaster or abnormal weather conditions.

(3) Paragraph (1)(b) above shall not apply in the case of the limits specified in Schedule 2 in relation to temperature, pH, dissolved oxygen and microbiological parameters.

## **Waivers**

7.—(1) Subject to the following provisions of this regulation the Secretary of State may waive any requirement to comply with the relevant limit value specified in Schedule 1 for any parameter in relation to waters classified under these Regulations if he considers it appropriate to do so—

- (a) as a result of any flood or other natural disaster;
- (b) in the case of any parameter marked (0) in Schedule 1, as a result of exceptional meteorological or geographical conditions;
- (c) where the waters undergo natural enrichment in certain substances as a result of which the waters would exceed the relevant limit value for that parameter;
- (d) in the case of a shallow loch or virtually stagnant surface water, for parameters marked with an asterisk in Schedule 1.

(2) The Secretary of State shall not waive any requirement if that would result in a danger to public health.

(3) Paragraph (1)(d) above shall only apply in the case of a shallow loch where—

- (a) the depth of the loch does not exceed 20 metres;
- (b) the exchange of water is slower than a year; and
- (c) waste water is not discharged in to the loch.

(4) In this regulation “natural enrichment” means a process whereby without human intervention a given body of water receives from the soil certain substances contained therein.

8.—(1) Subject to the following provisions of this regulation, the Secretary of State may waive any requirement to endeavour to respect the relevant limit value specified in Schedule 2 for any parameter in relation to any waters if he considers it appropriate to do so—

- (a) as a result of any flood or other natural disaster;
- (b) where the waters undergo natural enrichment in certain substances as a result of which the waters would exceed the standard for that parameter;
- (c) in the case of a shallow loch or virtually stagnant surface water, for parameters marked with an asterisk in Schedule 2.

(2) The Secretary of State shall not waive any standard if that would result in a danger to public health.

(3) Paragraph (1)(c) above shall only apply in relation to a loch if—

- (a) the depth of the water does not exceed 20 meters;
- (b) the exchange of water is slower than a year; and
- (c) waste water is not discharged into the loch.

(4) In this regulation “natural enrichment” means a process whereby without human intervention a given body of water receives from the soil certain substances contained therein.

### **Sampling and analysis**

**9.**—(1) Subject to regulations 10 and 11, the water authorities shall ensure that waters classified under these Regulations are sampled and samples are analysed, in accordance with paragraphs (2) to (5) below.

(2) Samples shall always be taken at the same sampling point at times when water is being abstracted by the relevant water authority for supply as drinking water and the sampling point chosen by the relevant water authority must be—

- (a) at the place where water is abstracted before being sent for purification treatment; and
- (b) so situated that samples taken at that point are representative of the quality of the water at that place.

(3) Samples shall be analysed for compliance with the parameters listed in Schedule 1, and where relevant Schedule 2, for the relevant class of waters using methods of measurement which are at least as reliable as those specified in that Part I of Schedule 3 and respect the values shown in that Part for limits of detection, precision and accuracy.

(4) Sampling and analysis shall be carried out at the frequency fixed by the relevant water authority in relation to the sampling point for those waters for each parameter listed in Schedule 1, and where relevant Schedule 2, and, in fixing the frequency, the relevant water authority shall ensure that—

- (a) sampling is carried out at regular intervals;
- (b) the annual frequency of sampling and analysis for each parameter is not less than that specified in Part II of Schedule 3 for the relevant class of waters; and
- (c) sampling is as far as possible spread over the year so as to give a representative picture of the quality of the water.

(5) The containers used for samples, the agents or methods used to preserve part of the sample for the analysis of one or more parameters, the conveyance and storage of the samples and the preparation of samples for analysis must not be such as to bring about any significant change in the results of the analysis.

### **Reduction of frequency of sampling etc**

**10.**—(1) Where a survey of any waters classified for the purposes of these Regulations shows that the values obtained for any parameters are considerably superior to the relevant limits specified in Schedule 1 for that class of waters in relation to those parameters, the relevant water authority may, after consultation with SEPA, reduce the frequency of sampling of the waters in relation to those parameters.

(2) The relevant water authority may, after consultation with SEPA decide, that regular sampling and analysis of waters classified under these Regulations is not needed if—

- (a) the requirements of paragraph (1) above are satisfied in relation to the waters;
- (b) there is no pollution of the waters;
- (c) there is no risk of the quality of the waters deteriorating; and
- (d) the quality of the waters is superior to the minimum required for waters classified as DW1.

**11.**—(1) Where a survey of any waters treated in accordance with regulation 6 as complying with any limit specified in Schedule 2 shows that the values obtained for any parameters are considerably superior to the relevant limits specified in Schedule 2 for that class of waters in relation to those parameters, the relevant water authority may, after consultation with SEPA, reduce the frequency of sampling of the waters in relation to those parameters.

(2) The relevant water authority may, after consultation with SEPA decide that regular sampling and analysis of waters classified under these Regulations is not needed if—

- (a) the requirements of paragraph (1) above are satisfied in relation to the waters;
- (b) there is no pollution of the waters;
- (c) there is no risk of the quality of the waters deteriorating; and
- (d) the quality of the waters is superior to the minimum required for waters classified as DW1.

### **Systematic plan of action**

**12.** SEPA shall draw up and maintain a systematic plan of action including a timetable for the improvement of surface water for the purposes of article 4 of the 1975 Directive.

### **Information**

**13.** SEPA may serve on any person a notice requiring that person to furnish SEPA, within a period or at times specified in the notice, and in a form and manner so specified, with such information as is reasonably required by SEPA for the purposes of giving effect to the 1975 Directive and the 1979 Directive.

### **Registers**

**14.—(1)** Each water authority shall maintain a register containing full particulars of—

- (a) sampling points in its area fixed under regulation 9(2) above;
- (b) results of analysis of samples taken under these regulations; and
- (c) the dates on which such samples were taken.

(2) The register maintained in pursuance of subsection (1) above shall be open to inspection by the public free of charge at all reasonable times, and members of the public shall be afforded reasonable facilities for obtaining from the relevant water authority, on payment of reasonable charges, copies of entries in the register.

(3) SEPA shall include in the registers it maintains under section 41 of the Control of Pollution Act 1974(9) full particulars of the plans and timetables drawn up and maintained under regulation 12 above.

### **Modification of the Control of Pollution Act 1974**

**15.—(1)** Section 30A(1)(c) of the Control of Pollution Act 1974(10) (meaning of “controlled waters”) shall have effect as if “inland waters” included all waters which need to be classified under these Regulations to give effect to the 1975 Directive in Scotland.

(2) Section 30C of the Control of Pollution Act 1974(11) (water quality objectives) shall have effect—

- (a) as if it imposed a duty on the Secretary of State to exercise his powers under that section to specify the classification DW1, DW2 or DW3 as appropriate in relation to all inland waters used or intended to be used by water authorities for supply as drinking water;
- (b) in relation to the performance of that duty, as if subsections (4) and (5) of that section were omitted.

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(9) 1974 c. 40; section 41 was inserted by section 169 and paragraph 4 of Schedule 23 to the Water Act 1989 (c. 15) and was amended by section 120 and paragraph 29(10), (17), (18) and (19) of Schedule 22 to the Environment Act 1995 (c. 25).

(10) Section 30A(1)(c) was inserted by section 169 and paragraph 4 of Schedule 23 to the Water Act 1989 (c. 15).

(11) 1974 c. 40; section 30C was inserted by section 169 and paragraph 4 of Schedule 23 to the Water Act 1989 (c. 15) and was amended by section 120 and paragraph 29(2) and (4) of Schedule 22 to the Environment Act 1995 (c. 25).

### **Consequential amendments and revocations**

**16.**—(1) Regulation 23 of the Water Supply (Water Quality) (Scotland) Regulations 1990<sup>(12)</sup> (treatment of raw water) shall be amended as follows—

(a) in paragraph (2), for the words the Surface Waters (Classification) (Scotland) Regulations 1990<sup>(13)</sup> there shall be substituted the words “The Surface Waters (Abstraction for Drinking Water) (Classification) (Scotland) Regulations 1996”; and

(b) paragraph (3) shall be omitted.

(2) The Surface Waters (Classification) (Scotland) Regulations 1990 are hereby revoked.

St Andrew’s House,  
Edinburgh  
3rd December 1996

*George Kynoch*  
Parliamentary Under Secretary of State Scottish  
Office

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<sup>(12)</sup> S.I. 1990/119; relevant amendments were made by S.I. 1991/1333.

<sup>(13)</sup> S.I. 1990/121.

## SCHEDULE 1

Regulation 2

## CRITERIA FOR CLASSIFICATION OF WATERS

The limits set out below are maxima

No in Annex II to the 1975 Directive	Parameters		DW1	DW2	DW3
2	Colouration (after simple filtration)	mg/l Pt Scale	20 <sup>(0)</sup>	100 <sup>(0)</sup>	200 <sup>(0)</sup>
4	Temperature	°C	25 <sup>(0)</sup>	25 <sup>(0)</sup>	25 <sup>(0)</sup>
7*	Nitrates	mg/l NO <sub>3</sub>	50 <sup>(0)</sup>	50 <sup>(0)</sup>	50 <sup>(0)</sup>
8	Fluorides	mg/l F	1.5		
10*	Dissolved iron	mg/l Fe	0.3	2	
12	Copper	mg/l Cu	0.05 <sup>(0)</sup>		
13	Zinc	mg/l Zn	3	5	5
19	Arsenic	mg/l As	0.05	0.05	0.1
20	Cadmium	mg/l Cd	0.005	0.005	0.005
21	Total Chromium	mg/l Cr	0.05	0.05	0.05
22	Lead	mg/l Pb	0.05	0.05	0.05
23	Selenium	mg/l Se	0.01	0.01	0.01
24	Mercury	mg/l Hg	0.001	0.001	0.001
25	Barium	mg/l Ba	0.1	1	1
26	Cyanide	mg/l CN	0.05	0.05	0.05
27	Sulphates	mg/l SO <sub>4</sub>	250	250 <sup>(0)</sup>	250 <sup>(0)</sup>
31	Phenols (phenol index) paranitroaniline 4-aminoantipyrine	mg/l C <sub>6</sub> H <sub>5</sub> OH	0.001	0.005	0.1
32	Dissolved or emulsified hydrocarbons (after extraction by petroleum ether)	mg/l	0.05	0.2	1

(0) See regulation 7(1)(b)

\* See regulation 7(1)(d)

**Status:** This is the original version (as it was originally made). This item of legislation is currently only available in its original format.

No in Annex II to the 1975 Directive	Parameters		DW1	DW2	DW3
33	Polycyclic aromatic hydrocarbons	mg/1	0.0002	0.0002	0.001
34	Total pesticides (parathion, hexachlorocyclohexane, dieldrin)	mg/1	0.001	0.0025	0.005
39	Ammonia	mg/1 NH <sub>4</sub>		1.5	4 <sup>(0)</sup>

(0) See regulation 7(1)(b)  
\* See regulation 7(1)(d)

## SCHEDULE 2

Regulation 3

## GUIDELINE VALUES

No in Annex II to 75/440/EEC	Parameters		DW1	DW2	DW3
1	pH		6.5 to 8.5	5.5 to 9	5.5 to 9
2	Coloration (after simple filtration)	mg/1 Pt Scale	10	50	50
3	Total suspended solids	mg/1 SS	25		
4	Temperature	°C	22	22	22
5	Conductivity at 20°C	µs/cm	1000	1000	1000
6	Odour	dilution factor at 25°C	3	10	20
7*	Nitrates	mg/1 NO <sub>3</sub>	25		
8 <sup>1</sup>	Fluorides	mg/1 F	0.7 to 1	0.7 to 1.7	0.7 to 1.7
10*	Dissolved iron	mg/1 Fe	0.1	1	1
11*	Manganese	mg/1 Mn	0.05	0.1	1
12	Copper	mg/1 Cu	0.02	0.05	1

1 The value given is an upper limit set in relation to the mean annual temperature (high and low).

2 This parameter has been included to satisfy the ecological requirements of certain types of environment.

\* See regulation 8(1)(c)



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No in Annex II to 75/440/EEC	Parameters		DW1	DW2	DW3
13	Zinc	mg/1 Zn	0.5	1	1
14	Boron	mg/1 B	1	1	1
19	Arsenic	mg/1 As	0.01		0.05
20	Cadmium	mg/1 Cd	0.001	0.001	0.001
24	Mercury	mg/1 Hg	0.0005	0.0005	0.0005
27	Sulphates	mg/1 SO <sub>4</sub>	150	150	150
28	Chlorides	mg/1 Cl	200	200	200
29	Surfactants (reacting with methyl blue)	mg/1 (laurylsulphate)	0.2	0.2	0.5
30 <sup>*2</sup>	Phosphates	mg/1 P <sub>2</sub> O <sub>5</sub>	0.4	0.7	0.7
31	Phenols (phenol index) paranitroaniline 4-aminoantipyrine	mg/1 C <sub>6</sub> H <sub>5</sub> OH		0.001	0.01
32	Dissolved or emulsified hydrocarbons (after extraction by petroleum ether)	mg/1			0.5
35 <sup>*</sup>	Chemical oxygen demand (COD)	mg/1 O <sub>2</sub>			30
36 <sup>*</sup>	Dissolved oxygen saturation rate	% O <sub>2</sub>	>70	>50	>30
37 <sup>*</sup>	Biochemical oxygen demand (BOD <sub>5</sub> ) (at 20°C without nitrification)	mg/1 O <sub>2</sub>	<3	<5	<7
38	Nitrogen Kjeldahl	mg/1 N	1	2	3

1 The value given is an upper limit set in relation to the mean annual temperature (high and low).

2 This parameter has been included to satisfy the ecological requirements of certain types of environment.

\* See regulation 8(1)(c)

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No in Annex II to 75/440/EEC	Parameters		DW1	DW2	DW3
	method (except NO <sub>3</sub> )				
39	Ammonia	mg/1 NH <sub>4</sub>	0.05	1	2
40	Substances extractable with chloroform	mg/1 SEC	0.1	0.2	0.5
43	Total coliforms 37°C	/100ml	50	5,000	50,000
44	Faecal coliforms	/100ml	20	2,000	20,000
45	Faecal streptococci	/100ml	20	1,000	10,000
46	Salmonella		Not present in 5,000ml	Not present in 1,000ml	
1	The value given is an upper limit set in relation to the mean annual temperature (high and low).				
2	This parameter has been included to satisfy the ecological requirements of certain types of environment.				
*	See regulation 8(1)(c)				

## SCHEDULE 3

Regulation 9

## PART 1

## METHOD OF MEASURING THE VALUES OF PARAMETERS

No. in Annex I to the 1975 Directive	Parameters	Limit of detection <sup>12</sup>	Precision <sup>13</sup>	Accuracy <sup>14</sup>	Method of measurement	Materials recommended for the container
1	pH	pH unit	–	0.1	0.2	– Electrometry. Measured in situ at the time of sampling without prior treatment of the sample.

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection <sup>12</sup>	Precision <sup>13</sup>	Accuracy <sup>14</sup>	Method of measurement	Materials recommended for the container
2	Coloration (after simple filtration) mg/1 Pt Scale	5	10%	20%	– Filtering through a glass fibre membrane. Photometric method using platinum-cobalt scale.	
3	Total suspended solids mg/1 SS	–	5%	10%	– Filtering through a 0.45µm filter membrane, drying at 105°C and weighing – Centrifuging (for at least 5 mins with mean acceleration of 2,800 to 3,200g) drying at 105°C and weighing.	
4	Temperature°C	–	0.5	1	– Thermometry. Measured in situ at the time of sampling without prior treatment of the sample.	
5	Conductivityµs/cm at 20°C	–	5%	10%	– Electrometry.	

*General note:* Samples taken at the abstraction point are analysed and measured after sieving (wire mesh sieve) to remove any floating debris such as wood or plastic.

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- 1 For waters classified as DW1, Schedule 2 limit.
- 2 For waters classified as DW2 and DW3.
- 3 For waters classified as DW3.
- 4 For waters classified as DW1, DW2 and DW3, Schedule 1 limit.
- 5 For waters classified as DW2, Schedule 1 limit, and DW3.
- 6 For waters classified as DW2 and DW3, Schedule 2 limit.
- 7 Mixture of six standard substances all of the same concentration to be taken into consideration: fluoranthene; 3, 4-benzofluoranthene; 11, 12-benzofluoranthene; 3, 4-benzopyrene; 1, 12-benzoperylene; indano/1, 2, 3-ed/pyrene.
- 8 Mixture of three substances all of the same concentration to be taken into consideration: parathion, hexachlorocyclohexane, dieldrin.
- 9 If the samples contain so much suspended matter as to require special preliminary treatment, the accuracy values shown in this Part of Schedule 3 may as an exception be exceeded and will be regarded as a target. These samples must be treated so as to ensure that the analysis covers the largest quantity of substances to be measured.
- 10 As this method is not in current use in all Member States it is not certain that the limit of detection required for checking values in the 1975 Directive can be attained.
- 11 Absence in 5,000 ml (for waters classified DW1, Schedule 2 limit) and absence in 1,000 ml (for waters classified DW2, Schedule 2 limit).
- 12 "Limit of detection" means the minimum value of the parameter examined which it is possible to detect.
- 13 "Precision" means the range within which 95% of the results of measurements made on a single sample, using the same method, are located.
- 14 "Accuracy" means the difference between the true value of the parameter examined and the average experimental value obtained.

No. in Annex I to the 1975 Directive	Parameters	Limit of	Precision() detection()	Accuracy()	Method of measurement recommended for the container	Materials	
6	Odour	dilution factor at 25 °C	—	—	—	— By successive dilutions.	Glass.
7	Nitrates	mg/1 NO <sub>3</sub>	2	10%	20%	— Molecular absorption spectrophotometry.	
8	Fluorides	mg/1 F	0.05	10%	20%	— Molecular absorption spectrophotometry after distillation if necessary. — Ion selective electrodes.	

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No. in Annex I to the 1975 Directive	Parameters	Limit of	Precision() detection()	Accuracy()	Method of measurement recommended for the container	Materials
10	Dissolved iron	mg/1 Fe	0.02	10%	20%	— Atomic absorption spectrophotometry after filtering through a filter membrane (0.45µm). — Molecular absorption spectrophotometry after filtering through a 0.45µm filter membrane.
11	Manganese	mg/1 Mn	0.01() 0.02()	10% 10%	20% 20%	— Atomic absorption spectrophotometry — Atomic absorption spectrophotometry — Molecular absorption spectrophotometry.
12	Copper()	mg/1 Cu	0.005 0.02()	10% 10%	20% 20%	— Atomic absorption spectrophotometry — Polarography — Atomic absorption spectrophotometry — Molecular absorption spectrophotometry

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement recommended for the container	Materials recommended for the container
13	Zinc()	mg/l Zn	0.01() 0.02	10% 10%	20% 20%	— Atomic absorption spectrophotometry — Atomic absorption spectrophotometry — Molecular absorption spectrophotometry.
14	Boron()	mg/l B	0.1	10%	20%	— Molecular absorption spectrophotometry — Atomic absorption spectrophotometry
19	Arsenic()	mg/l As	0.002() 0.01()	20%	20%	— Atomic absorption spectrophotometry — Atomic absorption spectrophotometry — Molecular absorption spectrophotometry.

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
20	Cadmium() mg/1 Cd	0.0002 0.0015	30%	30%	— Atomic absorption spectrophotometry — Polarography.	
21	Total Chromium() mg/1 Cr	0.01	20%	30%	— Atomic Absorption spectrophotometry — Molecular absorption spectrophotometry.	
22	Lead() mg/1 Pb	0.01	20%	30%	— Atomic absorption spectrophotometry — Polarography.	
23	Selenium() mg/1 Se	0.005			— Atomic absorption spectrophotometry.	
24	Mercury() mg/1 Hg	0.0001 0.0002()	30%	30%	— Flameless atomic absorption spectrophotometry (cold vaporisation).	
25	Barium() mg/1 Ba	0.02	15%	30%	— Atomic absorption spectrophotometry.	
26	Cyanide mg/1 CN	0.01	20%	30%	— Molecular absorption spectrophotometry.	
27	Sulphates mg/1 SO <sub>4</sub>	10	10%	10%	— Gravimetric analysis. — EDTA compleximetry.	

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
28	Chlorides mg/1 Cl	10	10%	10%	— Molecular absorption spectrophotometry. — Titration (Mohr's method). — Molecular absorption spectrophotometry.	
29	Surfactants (reacting with methylene blue) mg/1 (lauryl sulphate)	0.05	20%		— Molecular absorption spectrophotometry.	
30	Phosphates mg/1 P <sub>2</sub> O <sub>5</sub>	0.02	10%	20%	— Molecular absorption spectrophotometry.	
31	Phenols (phenol Index) mg/1 C <sub>6</sub> H <sub>5</sub> OH	0.0005 0.0015	0.0005 30%	0.0005 50%	— Molecular absorption spectrophotometry 4-aminoantipyrine method. — Paranitraniline method.	Glass.
32	Dissolved or emulsified hydrocarbons mg/1	0.01 0.04()	20%	30%	— Infra-red spectrometry after extraction by carbon tetrachloride — Gravimetry after extraction by petroleum ether.	Glass.

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
33	Polycyclic aromatic hydrocarbons() mg/1	0.00004	50%	50%	– Measurement of fluorescence in the UV after thin layer chromatography.  Comparative measurement in relation to a mixture of six control substances with the same concentration().	Glass or aluminium.
34	Total pesticides (parathion, hexachlorocyclohexane, dieldrin)() mg/1	0.0001	50%	50%	– Gas or liquid chromatography after extraction by suitable solvents and purification. Identification of the constituents of the mixture. Quantitative analysis().	Glass.
35	Chemical oxygen demand (COD) mg/1 O <sub>2</sub>	15	20%	20%	– Potassium dichromate method.	

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
36	Dissolved oxygen saturation rate	5	10%	10%	— Winkler method — Electrochemical method.	Glass.
37	Biochemical oxygen demand (BOD <sub>5</sub> ) at 20°C without nitrification	2	1.5	2	— Determination of dissolved oxygen before and after five day incubation at 20 °C ± 1°C in complete darkness. Addition of a nitrification inhibitor.	
38	Nitrogen by Kjeldahl method (except in NO <sub>2</sub> and NO <sub>3</sub> )	0.3	0.5	0.5	— Mineralisation, distillation by Kjeldahl method and ammonium determination by means of molecular absorption spectrophotometry or titration.	
39	Ammonium	0.01()	0.03()	0.03()	— Molecular	

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
		0.1()	10%()	20%()	absorption spectrophotometry.	
40	Substances mg/l extractable with chloroform	()			— Extraction at neutral pH value by purified chloroform, evaporation in vacuo at room temperature, weighing of residue.	
43	Total coliforms /100ml	5() 500()			— Culture on an appropriate specific solid medium (such as Tergitol lactose agar, Endo agar, 0.4% Teepol broth) with filtration()	Sterilised at 37 °C glass.
					or without	

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
					filtration() and colony count. Samples must be diluted or, where appropriate, concentrated in such a way as to contain between 10 and 100 colonies. If necessary, identification by gasification.	
					— Method of dilution with fermentation in liquid substrates in at least three tubes in three dilutions.	

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
44	Faecal coliforms	/100ml	2()	200()	Sub-culturing of the positive tubes on a confirmation medium. Count according to MPN (most probable number). Incubation temperature: 37°C ± 1 °C.	— Cultured at 44 °C on an appropriate specific solid medium (such as Tergitol lactose agar, Endo agar, 0.4% Teepol broth) with

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
					filtration() or without filtration() and colony count. Samples must be diluted or, where appropriate, concentrated in such a way as to contain between 10 and 100 colonies. If necessary, identification by gasification.	
					— Method of dilution with fermentation in liquid substrates in at least three tubes	

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
45	Faecal streptococci /100 ml	20) 200()			in three dilutions. Sub-culturing of the positive tubes on a confirmation medium. Count according to MPN (most probable number). Incubation temperature 44 °C ± 0.5 °C.	— Cultured on an appropriate solid medium (such as sodium azide) with filtration() or without

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
					filtration() and colony count. Samples must be diluted or, where appropriate concentrated in such a way as to contain between 10 and 100 colonies. — Method of dilution in sodium azide broth in at least three tubes in three dilutions. Count according to MPN (most	

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No. in Annex I to the 1975 Directive	Parameters	Limit of detection()	Precision()	Accuracy()	Method of measurement	Materials recommended for the container
46	Salmonella	1/5,000ml			probable number). — Concentration by glass filtration (on membrane or appropriate filter). — Inoculation into pre-enrichment medium. Enrichment and transfer into isolating gelese — Identification.	Sterilised

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## SCHEDULE 3

Regulation 9

## PART II

## MINIMUM ANNUAL FREQUENCY OF SAMPLING FOR EACH PARAMETER

Population served	Classification DW1			Classification DW2			Classification DW3		
	I <sup>1</sup>	II <sup>2</sup>	III <sup>3</sup>	I <sup>1</sup>	II <sup>2</sup>	III <sup>3</sup>	I <sup>1</sup>	II <sup>2</sup>	III <sup>3</sup>
≤10,000	1	1	1	1	1	1	2	1	1
>10,000 to ≤30,000	1	1	1	2	1	1	3	1	1
>30,000 to ≤100,000	2	1	1	4	2	1	6	2	1
>100,000	3	2	1	8	4	1	12	4	1

1 This column applies to the parameters – pH, coloration, total suspended solids, temperature, conductivity, odour, nitrates, chlorides, phosphates, chemical oxygen demand (COD), dissolved oxygen saturation rate, biochemical oxygen demand (BOD<sub>5</sub>) and ammonium.

2 This column applies to the parameters – dissolved iron, manganese, copper, zinc, sulphates, surfactants, phenols, nitrogen by the Kjeldahl method, total coliforms and faecal coliforms.

3 This column applies to the parameters – fluorides, boron, arsenic, cadmium, total chromium, lead, selenium, mercury, barium, cyanide, dissolved or emulsified hydrocarbons, polycyclic aromatic hydrocarbons, total pesticides, substances extractable with chloroform, faecal streptococci and salmonella.

## EXPLANATORY NOTE

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

These Regulations prescribe a system for classifying the quality of inland waters according to their suitability for abstraction for supply as drinking water, in implementation of Directive [75/440/EEC](#) (quality required of surface water intended for the abstraction of drinking water). They provide mandatory values for classifications DW1, DW2 and DW3 in Schedule 1 to the Regulations and guideline values for those classifications in Schedule 2 to the Regulations.

The Regulations also incorporate the methods of measurement and frequency of sampling and analysis for those values, laid down in Directive [79/869/EEC](#) (methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water).

These Regulations, together with regulation 23 of the Water Supply (Water Quality) (Scotland) Regulations 1990, complete the implementation of Directives [75/440/EEC](#) and [79/869/EEC](#) for Scotland.

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A compliance cost assessment of the effect that these Regulations would have on the cost of business is available from the Water Services Unit, Water Team, The Scottish Office, Victoria Quay, Edinburgh, EH6 6QQ.