

## SCHEDULE 3

Regulation 11

### Sampling and analysis

## PART 1

### General

#### Samples: general

- 1.—(1) The local authority must ensure that each sample is—
  - (d) taken by a competent person using suitable equipment;
  - (e) representative of the water at the sampling point at the time of sampling;
  - (f) not contaminated in the course of being taken;
  - (g) kept at such temperature and in such conditions as will secure that there is no material change in what is to be measured; and
  - (h) analysed without delay by a competent person using suitable equipment.
- (2) It must ensure that the sample is analysed using a system of analytical quality control.
- (3) The system must be subjected to checking by a person who is—
  - (a) not under the control of either the analyst or the local authority; and
  - (b) approved by the Welsh Ministers for that purpose.

#### Analysing samples

- 2.—(1) The local authority must ensure that each sample is analysed in accordance with this paragraph.
  - (2) For each parameter specified in the first column of Table 1 in Part 2 of this Schedule the method of analysis is specified in the second column of that table.
  - (3) For each parameter specified in the first column of Table 2 in Part 2 of this Schedule the method is one that is capable of—
    - (a) measuring concentrations and values with the trueness and precision specified in the second and third columns of that table, and
    - (b) detecting the parameter at the limit of detection specified in the fourth column of that table.
  - (4) For hydrogen ion, the method of analysis must be capable of measuring a value with a trueness of 0.2 pH unit and a precision of 0.2 pH unit.
  - (5) The method of analysis used for odour and taste parameters must be capable of measuring values equal to the parametric value with a precision of 1 dilution number at 25°C.
- (5) For these purposes—

“limit of detection” is —

  - (a) three times the relative within-batch standard deviation of a natural sample containing a low concentration of the parameter; or
  - (b) five times the relative within-batch standard deviation of a blank sample;

“precision” (the random error) is twice the standard deviation (within a batch and between batches) of the spread of results about the mean;

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“trueness” (the systematic error) is the difference between the mean value of the large number of repeated measurements and the true value.

**Authorisation of alternative methods of analysis**

3.—(1) The Welsh Ministers may authorise a method different from that set out in paragraph 2(2) if satisfied that it is at least as reliable.

(2) An authorisation may be time-limited and may be revoked at any time.

**Sampling and analysis by persons other than local authorities**

4.—(1) A local authority may enter into an arrangement for any person to take and analyse samples on its behalf.

(2) A local authority must not enter into an arrangement under paragraph (1) unless—

- (a) it is satisfied that the task will be carried out promptly by a person competent to perform it, and
- (b) it has made arrangements that ensure that any breach of these Regulations is communicated to it immediately, and any other result is communicated to it within 28 days.

**PART 2**

## Analytical methods

**Table 1****Prescribed methods of analysis**

<i>Parameter</i>	<i>Method</i>
<i>Clostridium perfringens</i> (including spores)	Membrane filtration followed by anaerobic incubation of the membrane on m-CP agar* at $44 \pm 1^\circ\text{C}$ for $21 \pm 3$ hours. Count opaque yellow colonies that turn pink or red after exposure to ammonium hydroxide vapours for 20 to 30 seconds.
Coliform bacteria	BS-EN ISO 9308-1
Colony count $22^\circ\text{C}$ — enumeration of culturable microorganisms	BS-EN ISO 6222
Colony count $37^\circ\text{C}$ — enumeration of culturable microorganisms	BS-EN ISO 6222
Enterococci BS-EN ISO 7899-2	
<i>Escherichia coli</i> ( <i>E. coli</i> )	BS-EN ISO 9308-1
* Use the following method to make m-CP agar : Make a basal medium consisting of—	
Tryptose	30.0g
Yeast extract	20.0g
Sucrose	5.0g
L-cysteine hydrochloride	1.0g
MgSO <sub>4</sub> .7H <sub>2</sub> O	0.1g
Bromocresol purple	40.0mg
Agar	15.0g
Water	1,000.0ml
Dissolve the ingredients of the basal medium, adjust pH to 7.6 and autoclave at $121^\circ\text{C}$ for 15 minutes. Allow the medium to cool. Dissolve—	
D-cycloserine	400.0mg
Polymyxine-B sulphate	25.0mg
Indoxyl- $\beta$ -D-glucoside	60.0mg
into 8ml sterile water and add it to the medium. Add to the medium—	
Filter-sterilised 0.5% phenolphthalein diphosphate solution	20.0ml
Filter-sterilised 4.5% FeCl <sub>3</sub> .6H <sub>2</sub> O	2.0ml

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<i>Parameter</i>	<i>Method</i>
<i>Pseudomonas aeruginosa</i>	BS-EN-ISO 12780
* Use the following method to make m-CP agar : Make a basal medium consisting of—	
Tryptose	30.0g
Yeast extract	20.0g
Sucrose	5.0g
L-cysteine hydrochloride	1.0g
MgSO <sub>4</sub> .7H <sub>2</sub> O	0.1g
Bromocresol purple	40.0mg
Agar	15.0g
Water	1,000.0ml
Dissolve the ingredients of the basal medium, adjust pH to 7.6 and autoclave at 121°C for 15 minutes. Allow the medium to cool. Dissolve—	
D-cycloserine	400.0mg
Polymyxine-B sulphate	25.0mg
Indoxyl-β-D-glucoside	60.0mg
into 8ml sterile water and add it to the medium. Add to the medium—	
Filter-sterilised 0.5% phenolphthalein diphosphate solution	20.0ml
Filter-sterilised 4.5% FeCl <sub>3</sub> .6H <sub>2</sub> O	2.0ml

**Table 2**

**Prescribed performance characteristics for methods of analysis**

<i>Parameters</i>	<i>Trueness % of prescribed concentration or value or specification</i>	<i>Precision % of prescribed concentration or value or specification</i>	<i>Limit of detection % of prescribed concentration or value or specification</i>
Aluminium	10	10	10
Ammonium	10	10	10

Notes:

- (i) The method of analysis should determine total cyanide in all forms.
- (ii) The performance characteristics apply to each individual pesticide and will depend on the pesticide concerned.
- (iii) The performance characteristics apply to the individual substances specified at 25% of the parametric value in Part I of Table B in Schedule 1.
- (iv) The performance characteristics apply to the individual substances specified at 50% of the parametric value in Part I of Table B in Schedule 1.
- (v) The performance characteristics apply to the prescribed value of 4 NTU.
- (vi) The performance characteristics apply to the specification of 1 NTU for surface waters or ground waters influenced by surface water.

<i>Parameters</i>	<i>Trueness % of prescribed concentration or value or specification</i>	<i>Precision % of prescribed concentration or value or specification</i>	<i>Limit of detection % of prescribed concentration or value or specification</i>
Antimony	25	25	25
Arsenic	10	10	10
Benzene	25	25	25
Benzo(a)pyrene	25	25	25
Boron	10	10	10
Bromate	25	25	25
Cadmium	10	10	10
Chloride	10	10	10
Chromium	10	10	10
Colour	10	10	10
Conductivity	10	10	10
Copper	10	10	10
Cyanide <sup>(i)</sup>	10	10	10
1,2-dichloroethane	25	25	10
Fluoride	10	10	10
Iron	10	10	10
Lead	10	10	10
Manganese	10	10	10
Mercury	20	10	20
Nickel	10	10	10
Nitrate	10	10	10
Nitrite	10	10	10
Pesticides and related products <sup>(ii)</sup>	25	25	25

## Notes:

- (i) The method of analysis should determine total cyanide in all forms.
- (ii) The performance characteristics apply to each individual pesticide and will depend on the pesticide concerned.
- (iii) The performance characteristics apply to the individual substances specified at 25% of the parametric value in Part I of Table B in Schedule 1.
- (iv) The performance characteristics apply to the individual substances specified at 50% of the parametric value in Part I of Table B in Schedule 1.
- (v) The performance characteristics apply to the prescribed value of 4 NTU.
- (vi) The performance characteristics apply to the specification of 1 NTU for surface waters or ground waters influenced by surface water.

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<i>Parameters</i>	<i>Trueness % of prescribed concentration or value or specification</i>	<i>Precision % of prescribed concentration or value or specification</i>	<i>Limit of detection % of prescribed concentration or value or specification</i>
Polycyclic aromatic hydrocarbons <sup>(iii)</sup>	25	25	25
Selenium	10	10	10
Sodium	10	10	10
Sulphate	10	10	10
Tetrachloroethene <sup>(iv)</sup>	25	25	10
Tetrachloromethane	20	20	20
Trichloroethene <sup>(iv)</sup>	25	25	10
Trihalomethanes:			
Total <sup>(iii)</sup>	25	25	10
Turbidity <sup>(v)</sup>	10	10	10
Turbidity <sup>(vi)</sup>	25	25	25

Notes:

- (i) The method of analysis should determine total cyanide in all forms.
- (ii) The performance characteristics apply to each individual pesticide and will depend on the pesticide concerned.
- (iii) The performance characteristics apply to the individual substances specified at 25% of the parametric value in Part I of Table B in Schedule 1.
- (iv) The performance characteristics apply to the individual substances specified at 50% of the parametric value in Part I of Table B in Schedule 1.
- (v) The performance characteristics apply to the prescribed value of 4 NTU.
- (vi) The performance characteristics apply to the specification of 1 NTU for surface waters or ground waters influenced by surface water.