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First published in the *Government Gazette*, Electronic Edition, on 22 March 2019 at 5 pm.

## No. S 156

# ENVIRONMENTAL PUBLIC HEALTH ACT (CHAPTER 95)

## ENVIRONMENTAL PUBLIC HEALTH (WATER SUITABLE FOR DRINKING) REGULATIONS 2019

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In exercise of the powers conferred by section 111 of the Environmental Public Health Act, the National Environment Agency, with the approval of the Minister for the Environment and Water Resources, makes the following Regulations:

PART 1  
PRELIMINARY

**Citation and commencement**

1. These Regulations are the Environmental Public Health (Water Suitable for Drinking) Regulations 2019 and come into operation on 25 March 2019.

**Definitions**

2. In these Regulations, unless the context otherwise requires —

“code of practice” means the Code of Practice on Drinking Water Sampling and Safety Plans issued by the Director-General as at 25 March 2019;

“parameter” means any property, characteristic, element, contaminant, substance or organism that is mentioned in the Schedule;

“water safety plan” means a plan describing the risk assessment and risk management measures that are or are to be used to minimise the likelihood of any water suitable for drinking being polluted or unwholesome;

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“water sampling plan” means a plan containing information on the sampling and testing of water, including —

- (a) the sampling location;
- (b) the sampling protocol;
- (c) the frequency of sampling;
- (d) the parameters to be tested; and
- (e) the test methods to be used;

“WSSP water provider” means a water provider to whom Part 3 applies.

## PART 2

### REQUIREMENTS OF WATER SUITABLE FOR DRINKING

#### **Requirements of water suitable for drinking**

3.—(1) For the purposes of section 79(2)(a) of the Act, the prescribed requirements are as specified in the Schedule.

(2) For the purpose of section 79(2)(b) of the Act, the prescribed methodology or assessment is as specified in the Guidelines for Assessment and Methodologies for Quality of Drinking Water, as may be amended from time to time, and which is available on the Agency’s website at <http://www.nea.gov.sg>.

## PART 3

### SAMPLING, TESTING AND ANALYSIS OF WATER SUITABLE FOR DRINKING

#### *Division 1 — General*

#### **Application of this Part**

4.—(1) Subject to paragraph (3), this Part applies to a water provider if —

- (a) the water provider provides water suitable for drinking by a system that is capable of producing more than 4 cubic metres of water suitable for drinking in a day; or

(b) the Director-General notifies the water provider in writing that this Part applies to the water provider.

(2) The Director-General may only give a water provider a notice under paragraph (1)(b) if the Director-General is satisfied that it is necessary to protect human health.

(3) Where a water provider is subject to this Part under paragraph (1)(a), the water provider is subject to this Part only in relation to the provision of water by the system that produces water suitable for drinking.

(4) In this regulation, “produce”, in relation to water suitable for drinking, means converting non-potable water into water suitable for drinking.

*Division 2 — Water safety plan and water sampling plan*

**Water safety plan**

5.—(1) A WSSP water provider must not provide any water suitable for drinking unless the WSSP water provider has in place a water safety plan that is prepared by the WSSP water provider, in accordance with the code of practice, and approved by the Director-General, for —

(a) where the code of practice requires, water that the WSSP water provider intends to convert into water suitable for drinking; and

(b) the water suitable for drinking.

(2) The WSSP water provider must review the water safety plan in accordance with the code of practice at least once each year, beginning with the year following the year in which the water safety plan is approved by the Director-General upon its preparation.

(3) After each review, the WSSP water provider must submit to the Director-General a report of the review —

(a) in accordance with the code of practice and in such form and manner as the Director-General may require; and

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(b) by 31 December of the year in which the review is conducted or such later time as the Director-General may allow in any particular case.

(4) The WSSP water provider must not amend the water safety plan (including following a review) except in accordance with the code of practice and with the approval of the Director-General.

(5) The WSSP water provider must comply with the water safety plan (with such amendments, if any) as approved by the Director-General.

### **Water sampling plan**

6.—(1) A WSSP water provider must not provide any water suitable for drinking unless the WSSP water provider has in place a water sampling plan that is prepared by the WSSP water provider, in accordance with the code of practice, and approved by the Director-General, for —

(a) where the code of practice requires, water that the WSSP water provider intends to convert into water suitable for drinking; and

(b) the water suitable for drinking.

(2) The WSSP water provider must not amend the water sampling plan except where in accordance with the code of practice and with the approval of the Director-General.

(3) The WSSP water provider must —

(a) comply with the water sampling plan (with such amendments, if any) as approved by the Director-General;

(b) ensure that adequate measures are taken to prevent the contamination or adulteration of samples obtained under the approved water sampling plan; and

(c) have the samples tested in —

(i) a testing laboratory accredited by the Singapore Accreditation Council to conduct the required test; or

(ii) any other place allowed by the Director-General.

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(4) In deciding whether to allow a test to be carried out at any other place under paragraph (3)(c)(ii), the Director-General must consider whether the time taken to carry out the test in a testing laboratory may cause the test results to be unreliable.

(5) Where the samples are tested at a place that is not a testing laboratory accredited by the Singapore Accreditation Council, the WSSP water provider must ensure that the kit or equipment used to test the samples —

- (a) is able to perform the required analysis;
- (b) is calibrated and accurate; and
- (c) is maintained in good working condition.

*Division 3 — Enforcement of this Part*

**Power to require water sample for test and analysis**

7.—(1) Where the Director-General knows or has reason to suspect that the water suitable for drinking provided by a WSSP water provider is polluted or unwholesome, the Director-General may direct the WSSP water provider in writing to submit to the Director-General a sample of enough water to test and analyse if the water is polluted or unwholesome.

(2) A WSSP water provider given a direction under paragraph (1) must comply with the direction.

**Powers upon review of water safety plan**

8.—(1) Where the Director-General considers that —

- (a) a review of a water safety plan under regulation 5(2); or
- (b) a further review under this paragraph,

was not carried out in accordance with the code of practice, the Director-General may direct the WSSP water provider to carry out a further review that is in accordance with the code of practice and submit a report of the further review by such time as the Director-General may allow.

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- (2) Where the Director-General considers that —
- (a) a report of the review of a water safety plan under regulation 5(3); or
  - (b) a report of a further review under paragraph (1),

is not in accordance with the code of practice, the Director-General may direct the WSSP water provider to submit an amended report that is in accordance with the code of practice by such time as the Director-General may allow.

(3) Where the Director-General receives the report of a review of a water safety plan and considers that the water safety plan does not comply with the code of practice, the Director-General may direct the WSSP water provider to amend the water safety plan so that it complies with the code of practice, and the water safety plan so amended is treated as approved by the Director-General for the purposes of regulation 5(4).

(4) A WSSP water provider given a direction under paragraph (1), (2) or (3) must comply with the direction.

### **Notice of and remedial measures to polluted or unwholesome water**

**9.**—(1) A WSSP water provider who becomes aware, or has reason to suspect, that the water suitable for drinking provided by the WSSP water provider is or might be polluted or unwholesome —

- (a) must notify the Director-General of the situation in accordance with paragraph (2) as soon as it is practicable but within 24 hours; and
- (b) take such appropriate measures as may be necessary to remedy the situation.

(2) The notification mentioned in paragraph (1)(a) must be made in such form and manner as the Director-General may require and must include —

- (a) the date and time when the WSSP water provider became aware or suspected that the water suitable for drinking became, or might have become, polluted or unwholesome;

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- (b) an explanation of the situation (including why, how and when (if known) the provided water suitable for drinking became, or might have become, polluted or unwholesome);
  - (c) the potential danger to human health that has arisen or may arise from the situation; and
  - (d) the measures that the WSSP water provider is taking to remedy the situation.

(3) The Director-General may direct the WSSP water provider in writing to take any additional remedial measures that the Director-General considers necessary by a specified time, and the WSSP water provider must comply with the direction.

### **Maintenance of records**

**10.**—(1) Every WSSP water provider must keep and maintain, in such form and manner as the Director-General may require, and for as long as required under this regulation, complete and accurate records of —

- (a) the water safety plan of the WSSP water provider as approved by the Director-General under regulation 5;
- (b) the water sampling plan of the WSSP water provider as approved by the Director-General under regulation 6;
- (c) the result of every test and analysis undertaken by the WSSP water provider under regulation 6;
- (d) every remedial measure and other action taken by the WSSP water provider under regulation 9; and
- (e) such other matter as the Director-General may specify in relation to the WSSP water provider.

(2) The records mentioned in paragraph (1) must be kept and maintained —

- (a) for records relating to the WSSP water provider's water safety plan, subject to paragraph (3), at least 5 years after the date the WSSP water provider no longer provides the water to which the water safety plan relates;



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- (b) for records relating to the WSSP water provider's water sampling plan, subject to paragraph (4), for at least 10 years after the date the WSSP water provider no longer provides the water to which the water sampling plan relates;
  - (c) for records of any report relating to a test and analysis of a chemical parameter, for at least 10 years after the date of the report;
  - (d) for records of any report relating to a test and analysis of a non-chemical parameter, for at least 5 years after the date of the report;
  - (e) for records of any remedial measure or other action taken, for at least 5 years after the date of the taking of the remedial measure or action; and
  - (f) for records of such other matter as the Director-General may specify in relation to the WSSP water provider, for as long as the Director-General may specify.

(3) Despite paragraph (2)(a), any record relating to a part of the WSSP water provider's water safety plan that has been superseded by an amendment need only be kept and maintained for 5 years after the Director-General approved the amendment.

(4) Despite paragraph (2)(b), any record relating to a part of the WSSP water provider's water sampling plan that has been superseded by an amendment need only be kept and maintained for 5 years after the Director-General approved the amendment.

(5) The Director-General may direct the WSSP water provider to submit any record maintained by the WSSP water provider under paragraph (1) to the Director-General for inspection, and the WSSP water provider must comply with the direction.

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PART 4  
MISCELLANEOUS

**Power to require information**

**11.**—(1) The Director-General may direct a water provider in writing to provide the Director-General, by a specified time, such information or document as the Director-General considers relevant or useful to ascertain if the water suitable for drinking provided or to be provided by the water provider is unpolluted and wholesome, including any information or document relating to —

- (a) any process or operation that is or is to be employed by the water provider in providing water suitable for drinking;
- (b) any material or chemical that is or is to be used by the water provider in providing water suitable for drinking;
- (c) in the case of a WSSP water provider —
  - (i) the water safety plan as approved by the Director-General under regulation 5;
  - (ii) the water sampling plan as approved by the Director-General under regulation 6; and
  - (iii) any test of water or result of the analysis of such test done under regulation 6; and
- (d) any feedback received from any person on the quality, purity and general appearance of the water suitable for drinking provided by the water provider.

(2) A water provider given a direction under paragraph (1) must comply with the direction.

**Revocation**

**12.** The Environmental Public Health (Quality of Piped Drinking Water) Regulations 2008 (G.N. No. S 35/2008) (called in these Regulations the revoked Regulations) are revoked.

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**Saving and transitional provisions**

**13.**—(1) Every water safety plan or water sampling plan that is approved before 25 March 2019, and is in force immediately before that date, continues as if, and is treated as, a water safety plan or water sampling plan approved under these Regulations.

(2) Where an application to amend or substitute a water safety plan or water sampling plan under regulation 5(4) of the revoked Regulations is made before 25 March 2019, and the application is pending immediately before that date, the application is treated as an application to amend that plan, made under regulation 5(4) or 6(2) (as the case may be) of these Regulations.

(3) A review of a water safety plan conducted under regulation 6(1) of the revoked Regulations before 25 March 2019 is treated as a review conducted under regulation 5(2) of these Regulations.

(4) A further review of a water safety plan conducted under regulation 6(4) of the revoked Regulations before 25 March 2019 is treated as a further review conducted under regulation 8(1) of these Regulations.

(5) A report submitted under regulation 6(3) of the revoked Regulations before 25 March 2019 is treated as a report under regulation 5(3) of these Regulations.

(6) A further report submitted under regulation 6(4) of the revoked Regulations before 25 March 2019 is treated as an amended report under regulation 8(1) of these Regulations.

(7) Every matter specified under regulation 10(1)(d) of the revoked Regulations before 25 March 2019 continues as if, and is treated as, specified under regulation 10(1)(e) of these Regulations.

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## THE SCHEDULE

Regulations 2 and 3

### QUALITY REQUIREMENTS OF WATER SUITABLE FOR DRINKING

#### PART 1

##### MICROBIAL PARAMETERS:

1. *Escherichia coli* (or alternatively, thermotolerant coliform bacteria) : must not be detectable in any 100 millilitre sample

#### PART 2

##### PHYSICO-CHEMICAL PARAMETERS:

1. Colour : must not exceed 15 True Colour Units
2. Turbidity : must not exceed 5 Nephelometric Turbidity Units
3. pH : 6.5-9.5 (if the water is provided by a WSSP water provider using a distribution network main connected to the service pipes or storage tanks in any area or to any premises)

#### PART 3

##### RADIOLOGICAL PARAMETERS:

1. Gross Alpha activity : must not exceed 0.5 becquerel/litre
2. Gross Beta activity : must not exceed 1 becquerel/litre
3. Radon 222 concentration : must not exceed 100 becquerel/litre

THE SCHEDULE — *continued*

## PART 4

## CHEMICAL PARAMETERS:

|   | <b>Maximum<br/>prescribed quantity<br/>(milligrams/litre)</b> |
|---|---|
| 1. Acrylamide                                     | 0.0005  |
| 2. Alachlor                                       | 0.02  |
| 3. Aldicarb Sulfoxide and Aldicarb Sulfone        | 0.01  |
| 4. Combined Aldrin and Dieldrin                   | 0.00003   |
| 5. Antimony                                       | 0.02  |
| 6. Arsenic  | 0.01  |
| 7. Atrazine and its chloro-s-triazine metabolites | 0.1   |
| 8. Barium   | 1.3   |
| 9. Bentazone                                      | 0.5   |
| 10. Benzene                                       | 0.01  |
| 11. Benzo[ <i>a</i> ]pyrene                       | 0.0007  |
| 12. Boron   | 2.4   |
| 13. Bromate                                       | 0.01  |
| 14. Bromodichloromethane                          | 0.06  |
| 15. Bromoform                                     | 0.1   |
| 16. Cadmium                                       | 0.003   |
| 17. Carbofuran                                    | 0.007   |
| 18. Carbon tetrachloride                          | 0.004   |
| 19. Chlorate                                      | 0.7   |
| 20. Chlordane                                     | 0.0002  |
| 21. Chlorine                                      | 5   |
| 22. Chlorite                                      | 0.7   |
| 23. Chloroform                                    | 0.3   |
| 24. Chlorotoluron                                 | 0.03  |

THE SCHEDULE — *continued*

|  | <b>Maximum<br/>prescribed quantity<br/>(milligrams/litre)</b> |
|--|---|
| 25. Chlorpyrifos   | 0.03  |
| 26. Chromium, in all forms as a total  | 0.05  |
| 27. Copper   | 2   |
| 28. Cyanazine  | 0.0006  |
| 29. Cyanide  | 0.07  |
| 30. Cyanide in Cyanogen Chloride form as part<br>of total cyanogenic compounds | 0.07  |
| 31. Cyanuric acid  | 40  |
| 32. 2,4-D (2,4-dichlorophenoxyacetic acid) in<br>free acid form                | 0.03  |
| 33. 2,4-DB [4-(2,4-Dichlorophenoxy) butyric<br>acid]                           | 0.09  |
| 34. DDT ( <i>dichlorodiphenyltrichloroethane</i> ) and<br>metabolites          | 0.001   |
| 35. Di(2-ethylhexyl)phthalate  | 0.008   |
| 36. Dibromoacetonitrile  | 0.07  |
| 37. Dibromochloromethane   | 0.1   |
| 38. 1,2-Dibromo-3-chloropropane  | 0.001   |
| 39. 1,2-Dibromomethane (Dibromomethane,<br>1,2-)                               | 0.0004  |
| 40. Dichloroacetate  | 0.05  |
| 41. Dichloroacetonitrile   | 0.02  |
| 42. 1,2-Dichlorobenzene (Dichlorobenzene,<br>1,2-)                             | 1   |
| 43. 1,4-Dichlorobenzene (Dichlorobenzene,<br>1,4-)                             | 0.3   |
| 44. 1,2-Dichloroethane (Dichloroethane, 1,2-)                                  | 0.03  |
| 45. 1,2 Dichloroethene (Dichloroethene, 1,2)                                   | 0.05  |
| 46. Dichloromethane  | 0.02  |

THE SCHEDULE — *continued*

|   | <b>Maximum<br/>prescribed quantity<br/>(milligrams/litre)</b> |
|---|---|
| 47. 1,2-Dichloropropane (Dichloropropane, 1,2-<br>; 1,2-DCP)                  | 0.04  |
| 48. 1,3-Dichloropropene (Dichloropropene 1,3-)                                | 0.02  |
| 49. Dichlorprop   | 0.1   |
| 50. Dichlorvos  | 0.02  |
| 51. Dicofol   | 0.01  |
| 52. Dimethoate  | 0.006   |
| 53. Dioxane, 1,4-(1,4-Dioxane)  | 0.05  |
| 54. Diquat  | 0.03  |
| 55. Edetic acid (EDTA-Ethylene Diamine<br>Tetraacetic Acid) in free acid form | 0.6   |
| 56. Endrin  | 0.0006  |
| 57. Epichlorohydrin   | 0.0004  |
| 58. Ethylbenzene  | 0.3   |
| 59. Fenoprop (2,4,5-TP; 2,4,5-trichlorophenoxy<br>propionic acid)             | 0.009   |
| 60. Fluoride  | 0.7   |
| 61. Glyphosate and aminomethylphosphoric acid<br>(AMPA)                       | 0.9   |
| 62. Hexachlorobutadiene (HCBd)  | 0.0006  |
| 63. Hydroxyatrazine   | 0.2   |
| 64. Isoproturon   | 0.009   |
| 65. Lead  | 0.01  |
| 66. Lindane   | 0.002   |
| 67. Malathion   | 0.9   |
| 68. Manganese   | 0.4   |

THE SCHEDULE — *continued*

|  | <b>Maximum<br/>prescribed quantity<br/>(milligrams/litre)</b>  |
|--|--|
| 69. MCPA [4-Chloro-2-methylphenoxyacetic acid; 4-(-2-methyl-4-chlorophenoxy)acetic acid] | 0.7  |
| 70. Mecoprop {MCP; [2(2-methyl-chlorophenoxy) propionic acid]}                           | 0.01   |
| 71. Mercury, in inorganic form   | 0.006  |
| 72. Methoxychlor   | 0.02   |
| 73. Metolachlor  | 0.01   |
| 74. Microcystin-LR, in free and cellbound forms as a total                               | 0.001  |
| 75. Molinate   | 0.006  |
| 76. Molybdenum   | 0.07   |
| 77. Monochloramine   | 3  |
| 78. Monochloroacetate  | 0.02   |
| 79. N-Nitrosodimethylamine (NDMA)  | 0.0001   |
| 80. Nickel   | 0.07   |
| 81. Nitrate (as NO <sub>3</sub> <sup>-</sup> )   | 50   |
| 82. Nitrate plus nitrite combined  | The sum of the ratios of the concentrations of each to their maximum prescribed quantity must not exceed 1 |
| 83. Nitriiotriacetic acid (NTA)  | 0.2  |
| 84. Nitrite (as NO <sub>2</sub> <sup>-</sup> )   | 3  |
| 85. Pendimethalin  | 0.02   |
| 86. Pentachlorophenol (PCP)  | 0.009  |
| 87. Perchlorate  | 0.07   |
| 88. Permethrin, where used as a larvicide for public health purposes                     | 0.3  |
| 89. Pyriproxyfen   | 0.3  |



THE SCHEDULE — *continued*

|   | <b>Maximum<br/>prescribed quantity<br/>(milligrams/litre)</b>   |
|---|---|
| 90. Selenium  | 0.04  |
| 91. Simazine  | 0.002   |
| 92. Sodium dichloroisocyanurate                           | 50  |
| 93. Sodium dichloroisocyanurate as cyanuric acid          | 40  |
| 94. Styrene   | 0.02  |
| 95. 2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)           | 0.009   |
| 96. Terbutylazine (TBA)                                   | 0.007   |
| 97. Tetrachloroethene                                     | 0.04  |
| 98. Toluene   | 0.7   |
| 99. Trichloroacetate                                      | 0.2   |
| 100. Trichloroethene                                      | 0.02  |
| 101. Trichlorophenol, 2,4,6-(2,4,6-Trichlorophenol)       | 0.2   |
| 102. Trifluralin  | 0.02  |
| 103. Trihalomethanes                                      | The sum of the ratio of the concentration of each Trihalomethane <sup>1</sup> to its respective maximum prescribed quantity must not exceed 1 |
|   | <i><sup>1</sup> Refers to bromoform, bromodichloromethane, dibromochloromethane and chloroform.</i>   |
| 104. Uranium (only chemical aspects of uranium addressed) | 0.03  |
| 105. Vinyl chloride                                       | 0.0003  |
| 106. Xylenes  | 0.5   |

Made on 19 March 2019.

LIAK TENG LIT  
*Chairman,*  
*National Environment Agency,*  
*Singapore.*

[NEA/LD/42/ V. 1; AG/LEGIS/SL/95/2015/3 Vol. 2]

(To be presented to Parliament under section 111(4) of the Environmental Public Health Act).