مكتب التنظيم و الرقابة
Regulation & Supervision Bureau

The Water Quality Regulations

(Fourth Edition)

January 2014

Issued by:
The Regulation and Supervision Bureau
for the water, wastewater and electricity sector
in the Emirate of Abu Dhabi

النسخة العربية متوفرة أيضاً

The Water Quality Regulations
(Fourth Edition)

Issued by:
The Regulation and Supervision Bureau
for the water, wastewater and electricity sector
in the Emirate of Abu Dhabi
www.rsb.gov.ae

January 2014

Foreword

The Regulation and Supervision Bureau (the Bureau) is established in Abu Dhabi law to oversee the economic and technical activities of the water, wastewater and electricity companies that are licensed to operate in the Emirate of Abu Dhabi.

In addition to its duties over licensed companies, the Bureau has certain responsibilities towards the general public, including the assurance of safe and efficient drinking water supplies to consumers and these Regulations have been produced with this primary aim in mind.

These revised Regulations Edition supersede those issued in 2009 (Revision 3) and are effective from 1 January 2014. They may be cited as the Water Quality Regulations (Fourth Edition) referred hereafter as the Regulations.

The Regulations are intended to provide for the supply of wholesome drinking water to consumers throughout the Emirate of Abu Dhabi and reflect the current guidance by the World Health Organization (WHO) and Gulf Cooperation Council (GCC). They have been produced following extensive consultation with sector companies.

They are also available in Arabic, but the reader should note they were first written in English. They may also be downloaded from the Bureau's website at www.rsb.gov.ae.

Nicholas Carter
Director General

1 January 2014

List of revisions

The Water Quality Regulations have been revised four times as follows:

1. The first revision was issued on February 2002 concerning amendments to Schedule 2: Sampling Frequency.

2. The second revision was issued on January 2004 concerning amendments to Schedule 1: Prescribed Concentrations or Values.

3. The third revision was issued on July 2009 concerning amendments to the Regulations and its Schedules. In addition, a new Schedule (Schedule 4: Drinking Water Performance) was introduced.

4. This fourth edition is the current Regulations issued in July 2013 which include changes concerning the Regulations structure and the introduction of new Parts together with amendments to the annexed Schedules.

Table of contents

The Water Quality Regulations

The Regulation and Supervision Bureau for the water, wastewater and electricity sector in the Emirate of Abu Dhabi in exercise of its powers conferred under Article (62) of Law No (2) of 1998 Concerning the Regulation of the Water and Electricity Sector in the Emirate of Abu Dhabi, as amended, hereby makes the following Regulations.

Part 1: Introduction

1

1.1 Citation and commencement

1.1.1 These Regulations may be cited as the Water Quality Regulations (Fourth Edition).

1.1.2 These Regulations supersede Revision 3 of the Water Quality Regulations and are effective from 1 January 2014. They may be cited as the Water Quality Regulations (Fourth Edition), hereafter referred to as the Regulations.

1.1.3 Schedules annexed to the Regulations may be amended by the Bureau after having provided a three months' notice for its intention to amend the Schedules.

1.2 Interpretation

Words and expressions, other than those defined in these Regulations, which are defined in the Law shall have the meanings ascribed to them in the Law.

Words and expressions to which meanings are assigned by these Regulations shall (unless the contrary intention appears) have the same respective meanings in any document issued by the Bureau under these Regulations.

Unless the context otherwise require any reference in these Regulations to a numbered Part, paragraph or Schedule is a reference to the Part, paragraph or Schedule of these Regulations bearing that number.

Any reference in these Regulations to a table is a reference to the relevant table in the numbered Schedules of these Regulations.

The following words and expressions shall have the following meanings in these Regulations unless the context otherwise requires:

Bureau – the Regulation and Supervision Bureau for the water, wastewater and electricity sector in the Emirate of Abu Dhabi, established under the Law.

Consumer – a person to whom water is supplied for a purpose mentioned in paragraph 2.1.

Distribution Company – a distribution company or body holding a licence from the Bureau, pursuant to the Law.

Guide for Drinking Water Safety Plans – a guide issued by the Bureau that provides the minimum requirements for preparing a drinking water safety plan.

Incident Reporting Regulations – means the Incident Reporting Regulations issued by the Bureau, as amended.

Law – Law No (2) of 1998 Concerning the Regulation of the Water and Electricity Sector in the Emirate of Abu Dhabi, as amended.

Licensed Supplier – the Supplier who holds a licence granted by the Bureau.

Licensed Transmission Operator – a person who is authorised by a licence granted under the Law to transmit electricity and/or water.

Parameter – a property, element, organism or substance listed in the second column of the Tables in Schedule 1 to these Regulations.

Plant – all water plants used in raw water abstraction i.e. ground water, water production, water treatment, transmission and distribution that describes the fixed infrastructure above and below ground.

Prescribed Concentration or Value (PCV) – in relation to any Parameter, means the maximum or minimum concentration or value specified in relation to that Parameter in the Tables in Schedule 1 to these Regulations as measured by reference to the unit of measurement so specified.

Sampling Point – a point that is determined as such by a Licensed Supplier for the purposes of Part 4 of these Regulations.

Supplier – any person who delivers water to or conveys water through trunk mains pipelines or mains pipelines, or delivers water by road vehicle for a purpose mentioned in paragraph 2.1, and cognate expressions shall be construed accordingly.

Standard Method – is the standard analytical method for the examination of water and wastewater published by the American Public Health Association, the American Water Works Association and the Water Environment Federation.

Water Supply Zone – an area that is designated by a Supplier (whether by reference to a source of supply, the number of persons supplied from any source, or otherwise) for the purposes of the provisions of these Regulations.

Water Transmission Code – the transmission code or codes of that name required to be prepared by a Licensed Transmission Operator and approved by the Bureau.

Water Tanker – means a road vehicle licensed by the Abu Dhabi Police Traffic and Licensing Department (UAE Minister of Interior) following certification of the tanker by the Distribution Company for the purposes of distributing and supplying wholesome water sourced from designated water filling stations which are owned, operated, managed or authorised by the Distribution Companies or under the control of the Distribution Companies.

Year – calendar year, according to the Gregorian calendar.

Part 2: Wholesomeness

2

2.1 All water supplied for the purposes of drinking, washing, cooking or food production shall be wholesome.

2.2 Water supplied for the purposes of drinking, washing or cooking or for food production purposes shall be regarded as wholesome if the requirements of paragraph 2.3 below are satisfied.

2.3 The requirements of this paragraph are:

(a) that the water does not contain any element, organism or substance (other than a Parameter) at a concentration or value which would be detrimental to public health;

(b) that the water does not contain any element, organism or substance (whether or not a Parameter) at a concentration or value which, in conjunction with any other element, organism or substance it contains (whether or not a Parameter), would be detrimental to public health; and

(c) that the water does not contain concentrations or values of the Parameters listed in Tables A to H in Schedule 1 in excess of the Prescribed Concentrations or Values;

2.4 The Bureau will consider the GCC Standardization Organization (GSO) Drinking Water Standards endorsed by the Emirates Authority for Standardization and Metrology (ESMA) or the World Health Organization (WHO) Water Quality Guidelines as a reference for the Regulations' maximum Prescribed Concentrations or Values (PCV) for all other Parameters not listed in Tables A to H of Schedule 1.

Part 3: Relaxation of requirements

3

3.1 The Bureau may, upon the written application of a Supplier, authorise a relaxation of the provisions of Part 2 with respect to supply of water by that Supplier.

3.2 Subject to paragraphs 3.3 and 3.4, the Bureau may at any time modify or revoke an authorisation (whether or not the authorisation is expressly given for a specified period) pursuant to paragraph 3.1 above.

3.3 The Bureau shall not revoke or modify an authorisation without giving at least 3 months' notice or, if the holder of the authorisation agrees, at least 6 weeks' notice by the Bureau of its intention to do so but the Bureau may revoke or modify an authorisation without notice if it appears to the Bureau that the immediate revocation or modification of the authorisation is required in the interests of public health.

3.4 A Supplier on whose application an authorisation has been given under this Part shall notify the Bureau as soon as the circumstances which gave rise to the application for the authorisation cease to exist, and, notwithstanding paragraph 3.3 above, the Bureau shall thereupon revoke the authorisation.

3.5 Any application for a relaxation under paragraph 3.1 shall provide sufficient information and data to allow the Bureau to assess the necessity for appropriateness of authorising a relaxation together with a risk assessment and mitigation plans. The Bureau requires a minimum of 3 months to assess any application made under paragraph 3.1.

3.6 The Bureau may require a Supplier who makes an application for a relaxation under paragraph 3.1 to pay a charge which reflects the expenses incurred or likely to be incurred by the Bureau in connection with that application. In determining the amount of any charge, the Bureau may adopt such methods and principles for its calculation as appear to it to be appropriate and notify the Supplier of the relevant expenses.

Part 4: Monitoring of water supplies

4

4.1 Part 4 applies to water supplied for any of the purposes described in paragraph 2.1

In this Part 4:

4.2 The **"Standard Number"** means such number of sampling frequency specified in the column headed **"Standard"** in Tables 1 to 7 of Schedule 2 as is applicable to the Parameter in question by reference to the number of persons estimated to have been supplied or the volume of water supplied, in addition to plant capacity or volume of water storage body or Water Tanker.

4.3 **"Revised Number"** means any relevant reduced or increased sampling frequency shown in any of Tables 1 to 7 of Schedule 2 as an alternative to the Standard Number;

(a) the Bureau shall have the discretion to require the Supplier to sample according to reduced or increased frequency as it finds necessary to do so. Otherwise the Standard Number shall be the applicable frequency.

(b) On or before week 36 of each Year, a Supplier may submit to the Bureau for its approval the proposed "Revised Number" together with a risk assessment for the reduced or increased frequencies proposed to be adopted in the following Year.

(c) On or before week 36 of each Year, the "Revised Number" or "Standard Number" in Schedule 2 may be changed by the Bureau upon a notice issued to the Supplier advising its intention to change the sampling frequency numbers included in Schedule 2.

4.4 For the purpose of determining whether water to which these Regulations apply satisfies the provisions of Part 2 or, as the case may be, those provisions as relaxed by an authorisation given under Part 3, a Licensed Supplier shall take and analyse or cause to be analysed such number of samples of the water within each of its Plants, Water Supply Zones or from its Water Tankers as is specified in this Part.

4.5 Subject to paragraph 4.9, a Licensed Supplier shall determine, in respect of each of its Plants, Water Supply Zones or Water Tankers, such number and location of Sampling Points as will in its opinion secure that analysis of samples obtained from those points in respect of the Parameters listed in Tables A to H will, so far as is reasonably practicable, produce data that is representative of the quality of the water supplied by it.

4.6 Each year, a Licensed Supplier to whom these Regulations apply shall take from its Sampling Points for analysis and testing for compliance with each Parameter not less than such Standard Number of samples as is specified in Tables 1 to 7 of Schedule 2 in relation to the Parameter in question.

4.7 The number of samples to be taken in respect of any Parameter may, if the Bureau so authorises, be revised in relation to that Parameter in the relevant table.

4.8 Where testing is required for a Parameter not listed in Schedule 1, a Licensed Supplier shall take sufficient samples of water within a Plant, Water Supply Zone or from Water Tankers in order to establish whether or not the water is wholesome. Should there be any reasonable grounds for believing that:

(a) the Prescribed Concentration or Value in respect of that Parameter has been exceeded or may be exceeded within the next 3 months; or

(b) the Prescribed Concentration or Value in respect of any other Parameter has been exceeded or may be exceeded within the next 3 months and the taking and analysis of samples in relation to the Parameter first mentioned would assist in deciding whether, and if so what remedial action should be taken.

4.9 A Licensed Supplier shall take sufficient samples of water within a Water Supply Zone or from a Water Tanker in respect of any element, organism or substance, other than a Parameter, in order to establish whether or not that water is detrimental to public health as soon as it believes or has reasonable grounds for believing that an element, organism

or substance, whether alone or in combination with a Parameter or any other element, organism or substance may cause the supply within that zone or from that tanker to be a source of supply which does not satisfy the provisions of Part 2 or, where those provisions have been relaxed by an authorisation given under Part 3, those provisions as so relaxed.

4.10 Before supplying water from a new pipe, Plant and its water installations or from an existing pipe, Plant together with its water installations, that has not been used for a period of more than 14 days; the Supplier shall:

(a) either shut off at the supply stop valve and drain the pipe, Plant and its installations or the water shall be flushed regularly; or

(b) assess whether water can be supplied from that pipe, Plant and its installations without contravening these Regulations by sampling that water in accordance with paragraph 4.11.

4.11 Samples shall be taken in the case of a source mentioned in paragraph 4.10, in respect of:

(a) each of the Parameters listed in Schedule 1 if it is a new pipe, Plant and its installations but for existing pipes, Plants and their water installations which have not been in use then the relevant Plant sampling frequency included in Schedule 2 shall apply; and

(b) any other element, organism or substance which, in the opinion of the Supplier, may cause the supply to contravene these Regulations.

4.12 Pipes, water installations and water service connections that are not commissioned immediately after completion or are to be disconnected temporarily, shall be shut off at the water main and those not used for a period of one year or more, should be disconnected from the water main and sampled according to 4.11.

Part 5: Water quality sampling and testing

5

5.1 A Licensed Supplier shall ensure, so far as is reasonably practicable, that in taking, handling, transporting, storing and analysing or causing to be analysed any sample taken for the purposes of Parts 4 or 9 of these Regulations, the appropriate requirements are satisfied.

5.2 In paragraph 5.1 "the appropriate requirements" means such of the following requirements as are applicable:

(a) the sample is representative of the quality of the water at the time of sampling;

(b) the sample collection programme should be made with sampling frequency from predetermined locations at equal intervals over the year;

(c) the sample is not contaminated when being taken or transported;

(d) the sample is kept at such temperature and in such conditions as will secure that there is no material alteration of the concentration or value for the measurement or observation of which the sample is intended; and

(e) the sample is analysed as soon as may be practicable after it has been taken:

(i) by or under the supervision of a person who is competent to perform that task;

(ii) with the use of such equipment as is suitable for the purpose; and

(iii) by applying such recognised analytical systems and methods, such as the Method of Testing for Drinking Water by GSO/ESMA; or the Standard Method for the Examination of Water and Wastewater, (or any other method as may be approved by the Bureau) capable of establishing, within acceptable limits of deviation and detection, whether the sample contains concentrations or values which contravene the Prescribed Concentrations or Values;

5.3 The Supplier shall carry out sampling collection and handling in accordance with ISO 5667 on Water Quality Sampling or demonstrate that an international best practice is adopted which provides guidance on sample handling and preservation technique.

5.4 Water quality samples shall be analysed at any laboratory which has a system of analytical quality control that is subject, from time to time, to checking by a person who is:

(a) not under the control of either the laboratory or the person to whom these Regulations apply; and

(b) approved by the Bureau for that purpose.

5.5 Where a Supplier seeks to undertake testing at laboratories not under its control; the Bureau requires as a minimum that such laboratories are accredited to ISO 17025 which sets out the general requirements for the competence of testing and calibration laboratories.

Part 6: New products, substances and process

6

6.1 A Supplier shall not apply any substance or product to, or introduce any substance or product into water, which is to be supplied for drinking, washing, cooking or food production purposes unless:

(a) the Bureau has approved the application or introduction of that substance or product and it is applied or introduced in accordance with any conditions attached to that approval; and

(b) the Supplier is completely satisfied that the substance or product either alone or in combination with any other substance or product in the water is not likely to affect the wholesomeness of the water supplied.

6.2 The Bureau may, if it decides to issue an approval for the purpose of paragraph 6.1 (a), include in the approval such conditions as it considers appropriate and, subject to paragraph 6.4, may at any time revoke or vary any approval it has previously given.

6.3 The Bureau may by notice given in writing to a Supplier prohibit it for such period as is specified in the notice from applying to, or introducing into water intended to be supplied for drinking, washing, cooking or food production purposes, any substance or product which the Supplier would otherwise be authorised to apply or introduce by paragraph 6.1 (a).

6.4 The Bureau may:

(a) revoke in writing any approval given by it for the purposes of paragraph 6.1 (a);

(b) modify any such approval in writing by including conditions, or varying existing conditions; and

(c) issue any such notice as is mentioned in paragraph 6.3.

Unless it is satisfied that it is necessary to do so in the interests of public health without notice, the Bureau shall not apply the above without giving all such persons as are, in its opinion, likely to be affected by the revocation or modification of the approval or by the issue of the notice at least 6 months' notice in writing of its intention.

6.5 The Bureau may at any time by notice in writing given to a Supplier, require it to make an application to the Bureau for approval of the use of any process, and may prohibit it for such period as may be specified in the notice from using any such process in connection with the delivery or conveyance by the Supplier of water for drinking, washing, cooking or food production purposes.

6.6 The Bureau may refuse the application or impose on any approval given for the purposes of these Regulations such conditions as it thinks fit and, subject to paragraph 6.7, may at any time by notice in writing to the person, revoke an approval so given or modify or revoke any condition imposed by virtue of this paragraph.

6.7 The Bureau shall not:

(a) revoke any approval given for the purposes of these Regulations;

(b) modify any condition imposed by virtue of paragraph 6.6; or

(c) prohibit a Supplier from using any process,

unless it has given to the Supplier at least 6 months' notice in writing of its intention, provided that this paragraph shall not apply in any case in which the Bureau is of the opinion that the immediate revocation, modification or prohibition is necessary in the interests of public health.

6.8 The Bureau may, by notice in writing, require the Supplier who makes an application for an approval under paragraph 6.5 to pay to it a charge which reflects the administrative expenses (excluding the costs of conducting any tests)

incurred or likely to be incurred by the Bureau in connection with that application; and in determining the amount of any charge the Bureau may adopt such methods and principles for its calculation as appear to it to be appropriate.

6.9 New disinfection processes or chemicals other than chlorine (e.g. chloramine, chlorine dioxide, ozone, ultraviolet) shall be subject to the same conditions of this Part and, where approval is granted by the Bureau, they shall be monitored according to the same sampling frequency of chlorine.

Part 7: Water quality audits and assessments

7

7.1 To ensure compliance with these Regulations the Bureau may conduct from time to time a water quality management system audit which covers analytical arrangements, sampling processes, data quality and reporting. It also covers water treatment chemicals used in water production processes for the supply of wholesome water. The water quality audit shall:

(a) assess the effectiveness of the existing water quality testing regime;

(b) evaluate the capability to perform tests on all Parameters required in these Regulations;

(c) identify any shortcomings and areas of concern; and

(d) report on key findings on water quality related issues and make recommendations.

7.2 Water quality audits are usually conducted on an annual basis for all Licensed Suppliers and independent laboratories that undertake water quality analysis for Licensed Suppliers.

Part 8: Drinking water safety plan

8

8.1 Suppliers are required to develop and maintain a drinking water safety plan (DWSP) in accordance with the Bureau's Guide for Drinking Water Safety Plans that covers the potential areas of contamination risks associated with external and internal factors and in situations where there is an exceedance of a Parameter or a substance in the process of water production, transmission, distribution and supply.

8.2 The primary objective of developing and maintaining a DWSP is to ensure good drinking water supply practices are adopted through the use of a comprehensive risk assessment plan in accordance with the World Health Organization (WHO) Water Quality Guidelines principles on water safety plans.

8.3 DWSPs shall include but not be limited to risk assessment, management of operational monitoring, communication protocols, hazard identification, appropriate control measures and remedial actions.

8.4 All the procedures, plans, communication protocols, remedial actions and supporting programmes are required to be documented and updated from time to time. Licensed Suppliers shall submit to the Bureau a copy of their DWSP.

8.5 An assessment of the DWSP arrangements will be conducted as required by be Bureau or by a person appointed by the Bureau for the purpose of ensuring the DWSP achieves its intended purpose.

Part 9: Records and information

9

9.1 A Licensed Supplier shall prepare and maintain, in respect of each of its Plants, Water Supply Zones and Water Tankers, a record containing:

(a) the name or the identification number of the zone or area, Water Tanker, well field, desalination Plant, reservoir or pumping Plant;

(b) as relevant, an estimate of the population or volume of water distributed to the zone or the capacity of water tank or reservoir; Water Tankers and water Plant;

(c) particulars of water Plant processes and water treatment chemicals used at the Plant;

(d) a programme of sampling schedule;

(e) test method(s) for each of the Parameters included in Schedule 1 of the Regulations;

(f) particulars of any relaxation granted under Part 3 which applies to water supplied in the zone;

(g) such particulars as the Licensed Supplier may determine;

(h) relevant information in the initial entries forms A to E in Schedule 3; and

(i) particulars of the result of any analysis of samples taken in accordance with Part 4 of these Regulations.

9.2 A Licensed Supplier shall make available to the Bureau:

(a) initial entries in the register in respect of the matters mentioned in paragraph 9.1 (a) to (h) no later than week 40 of each Year;

(b) entries relating to the results of the analysis of samples within 14 days of the sample collection date according to the sampling programme in a form approved by the Bureau or in which the result is first known to the person or sooner where the data gives cause for concern; and

(c) an entry of the information mentioned in paragraph 9.1 (i).

9.3 Without prejudice to paragraph 9.2, the Licensed Supplier shall at least once in each Year review and bring up to date the record required to be kept by paragraph 9.1.

9.4 Nothing in these Regulations shall require a Licensed Supplier to retain a record of any information mentioned in paragraph 9.1 (f) or (g) at any time more than 5 years after the date on which the information was first entered in the record.

9.5 A Distribution Company shall make available for inspection by the public at all reasonable hours and free of charge at such of its offices as are normally open to the public any record maintained by it in accordance with paragraph 9.1 for Parameters mainly related to Table A or other Parameters as the Distribution Company or the Bureau finds appropriate.

9.6 A Distribution Company shall afford to any person facilities to take or obtain a copy of any part of a record maintained in accordance with paragraph 9.5:

(a) in the case of a person who receives a supply of water in the zone and whose request is confined to information relating to that zone, free of charge; or

(b) in any other case, on payment of such reasonable charge as the Distribution Company may determine.

9.7 A Distribution Company shall include in or append to at least one of the accounts sent to each customer in any Year a statement informing the public that records of water quality may be inspected by the public free of charge and of the address, telephone number and hours of opening of at least one of the offices at which an inspection can be made.

9.8 A Licensed Supplier shall prepare for the Bureau a report for each Year and, in respect of the statement in paragraph (b), including:

(a) a summary of the quality of water supplied by it;

(b) a statement as to the extent to which water supplied by it complied with Part 2 of these Regulations;

(c) particulars of any relaxation granted under Part 3 which applies to water supplied by it; and

(d) particulars of matters related to system modification for water quality purposes.

9.9 On or before 31 March each year, a Licensed Supplier shall send to the Bureau a copy of the annual report referred to in paragraph 9.8.

9.10 Schedule 4 includes performance asset base indices which are used by the Bureau for performance monitoring measures.

Part 10: Water quality non-compliance and incidents reporting

10

10.1 In the event that the test results for one or more of the Parameters included in Tables A to H of Schedule 1 fails to meet the limits or lies outside the Prescribed Concentration or Value (PCV), particularly Table F (microbiological Parameters), Licensed Suppliers shall notify the Licensed Transmission Operator in accordance with the notification procedure in the Operating Code of the Water Transmission Code together with the remedial action considered.

10.2 Licensed Suppliers shall report to the Bureau water quality incidents as defined under the operation incident classification in the Incident Reporting Regulations. The definition of an incident is a significant and unexpected or unusual deterioration in the quality of the water entering the supply which, by reason of its effect or likely effect, gives rise or is likely to give rise to a significant risk to the health of consumers.

10.3 In reporting water quality incidents, the Licensed Supplier shall also take into account the reporting requirements under the Abu Dhabi Environmental, Health and Safety Management System Regulatory Framework (EHSMS RF), Mechanism 6.0 to the appropriate Sector Regulatory Authority (SRA).

Part 11: Enforcement

11

11.1 Failure of any person to comply with these Regulations shall be contrary to, and enforced in accordance with, the Law.

11.2 These Regulations are subject to modification or revocation by the Bureau at any time and from time to time.

SCHEDULES

Schedules

Schedule 1
Parameters & limits

Schedule 1: Parameters & limits

1

Table A - Physical Parameters

Item	Parameter	Unit of measurement	Concentration or value (maximum unless otherwise stated)
1	Colour	mg/l pt/Co scale	15.0
2	Turbidity (including suspended solids)	NTU (Nephelometric Turbidity Unit)	4.0
3	Odour (including hydrogen sulphide)	Dilution number	Unobjectionable
4	Taste	Dilution number	Unobjectionable
5	Total dissolved solids (TDS) **(i)** *	mg/l	100 (minimum) 1,000 (maximum)
6	Calcium hardness *	mg/l as $CaCO_3$	200 at 25 ºC
7	Total hardness *	mg/l as $CaCO_3$	300 at 25 ºC
8	Langelier saturation index	Value shall be slightly positive at all times	0.0 (minimum) 0.5 (maximum)
9	Hydrogen ion	pH value	7.0 (minimum) 9.2 (maximum)
10	Residual chlorine **(ii)**	mg/l Cl2	0.2 (minimum) 0.5 (maximum)

(i) The total dissolved solids (TDS) shall be measured using the Guide to Total Dissolved Solids (k factor) calculations which is the Summation Method (Anions and cations) measured according to the Standard Method at a frequency specified in the Guide to Total Dissolved Solids (k factor) calculations to establish the k factor. The k factor is the ratio adopted in determining the TDS from the measurement of electric conductivity in µmhos/cm. Where the TDS (by summation method) = k x EC in mg/l, k can only be in the range of 0.55 to 0.8.

(ii) Residual chlorine ideal concentration shall be between 0.2 to 0.5 mg/l. However it may increase to 1.00mg/l or even above in situations where the Licensed Supplier or the Transmission System Operator request it in accordance with the Water Transmission Code or for the purpose of controlling possible bacteriological contamination.

(iii) *For produced water minimum limit for calcium hardness, the total hardness, calcium content hydrogen bicarbonate contents (HCO3) and the maximum limit for TDS (<200mg/l), shall be according to the water quality exit specification composition requirements of the supplier Plant. This is to ensure meeting the remineralisation limits in the water desalination processes.

Table B - Inorganic chemical Parameters

Item	Parameter	Unit of measurement	Concentration or value (maximum unless otherwise stated)
1	Sulphate	mg SO_4 /l	250.0
2	Magnesium	mg Mg/l	30.0
3	Sodium	mg Na/l	150.0
4	Potassium	mg K/l	12.0
5	Chlorides	mg Cl/l	250.0
6	Nitrate	mg NO_3/l	50.0
7	Nitrite	mg NO_2/l	3.0
8	Ammonium (ammonia and ammonium ions)	mg NH_4/l	0.5
9	Total organic carbon (TOC) **(i)**	mg C/l	1.0
10	Aluminium	mg Al/l	0.2
11	Iron	mg Fe/l	0.2
12	Copper	mg Cu/l	1.0
13	Zinc	mg Zn/l	5.0
14	Phosphorus	mg P/l	2.2

(i) The normally observed value of TOC in the network is < 1 mg C/l during the normal operation and < 2 mg C/l in newly commissioned or repaired systems. Any increase over these values requires further investigation.

Table C - Inorganic chemical Parameters (mostly trace elements)

Item	Parameters	Unit of measurement	Concentration or value (maximum unless otherwise stated)
1	Arsenic	µ As g/l	10.0
2	Cadmium	µ Cd g/l	3.0
3	Chromium	µ Cr g/l	50.0
4	Mercury	µ Hg g/l	6.0
5	Nickel	µ Ni g/l	70.0
6	Lead	µ Pb g/l	10.0
7	Antimony	µ Sb g/l	20.0
8	Selenium	µ Se g/l	40.0
9	Barium	µ Ba g/l	700.0
10	Boron	µ B g/l	2,400.0
11	Manganese	µ Mn g/l	400.0
12	Fluoride	µ F g/l	1,500.0

Table D - Miscellaneous organic Parameters (mostly pesticides)

Item	Parameter	Unit of measurement	Concentration or value (maximum unless otherwise stated)
1	Endrine	µg/l	0.6
2	Lindane	µg/l	2.0
3	Methoxychlor	µg/l	20.0
4	2,4 dichlorophexy acetic acid	µg/l	30.0
5	2,4,5 trichlorophenoxy propionic acid	µg/l	9.0
6	Phenols	µg/l	0.5
7	Heptachlor	µg/l	0.03
8	Aldrin	µg/l	0.03
9	DDT	µg/l	1.0
10	Chlordane	µg/l	0.2
11	Dieldrin	µg/l	0.03
12	Heptachlor epoxide	µg/l	0.03
13	Cyanide	µg/l	70.0
14	Total pesticides **(i)**	µg/l	0.5

(i) Total pesticides — means the sum of all individual pesticides detected and quantified in the monitoring procedure. Those pesticides can be from the list of individual Parameters in the table above or outside it. Forms of pesticides can be, but are not limited to organic insecticides, herbicides and fungicides.

Table E - Organic Parameters

Item	Parameter	Unit of measurement	Concentration or value (maximum unless otherwise stated)
1	Trichloroethene	µg/l	20.0
2	Tetrachloromethane	µg/l	3.0
3	Tetrachloroethene	µg/l	40.0
4	1,2-Dichloroethane	µg/l	30.0
5	Benzene	µg/l	10.0
6	Benzo(a)pyrene	µg/l	0.7
7	Dichloromethane	µg/l	20.0
8	Chlorobenzene	µg/l	300.0
9	1,2-Dichloroethene	µg/l	50.0
10	Toluene	µg/l	700.0
11	1,2-Dichlorobenzene	µg/l	1,000.0
12	1,4-Dichlorobenzene	µg/l	300.0
13	Vinyl Chloride	µg/l	0.3

Table F - Microbial Parameters

Item	Parameter	Unit of measurement	Concentration or value (maximum unless otherwise stated)
1.	Total coliforms	Number/100ml	0
2.	E.coli or thermotolerent Faecal coliform bacteria	Number/100ml	0
3.	Enterococci	Number/100 ml	0
4.	Total Bacterial Count	Number/1 ml at 37ºC	10 at 37 ºC

(i) Immediate action must be taken if either E.Coli or Total coliform bacteria are detected.

(ii) Legionella, Pseudomonas aeruginosa and Sulphite reducing bacteria testing needs to be conducted randomly in the in the distribution network as an indicator for detecting possible contamination or where observations associated with taste, odour and colour problems. Target should be Zero organism.

(iii) Drinking water shall be free at all times from algae, mould, parasites, insects and their eggs, larvae, protozoa including Amebo.

(iv) Total Bacterial Count limit shown above is an indicator for disinfection efficiency and the risk of potential contamination; hence Suppliers shall take immediate remedial measures where significant increase over that normally observed levels is detected which is 100 at 37 ºC or above.

Table G - Radioactive Parameters

Item	Parameter	Unit of measurement	Concentration or value (maximum unless otherwise stated)
1	Gross ∝	Bq/l	≤ 0.5
2	Gross ß	Bq/l	≤ 1

Remarks:

(i) Initial screening for gross ∝ / or gross ß activity to determine whether the activity concentrations are below levels at which no further action is required. If initial screening levels exceed the above then investigation and monitoring of individual radionuclide should follow immediately. The limits for the individual radionuclide should be in accordance with guidance levels (WHO Water Quality Guidelines) as follows:

Item	Parameter	Unit of measurement	Concentration or value
1	Uranium-238	Bq/l	10
2	Uranium-234	Bq/l	1
3	Thorium-230	Bq/l	1
4	Radium-226	Bq/l	1
5	Lead-210	Bq/l	0.1
6	Polonium-210	Bq/l	0.1
7	Thorium-232	Bq/l	1
8	Radium-228	Bq/l	0.1
9	Thorium-228	Bq/l	1
10	Caesium-134	Bq/l	10
11	Caesium-137	Bq/l	10
12	Strontium-90	Bq/l	10
13	Iodine-131	Bq/l	10
14	Tritium	Bq/l	10,000
15	Carbon-14	Bq/l	100
16	Plutonium-239	Bq/l	1
17	Americium-241	Bq/l	1

If the following additive formula is satisfied, then no further action is required:

∑ Ci/GLi ≤ 1.0

Where:

Ci=the measured activity concentration of radionuclide i

GL=the guidance level of radionuclide i

Occasionally, if the guidance levels are exceeded, national authorities will then need to make a decision regarding the need to implement remedial measures or to place some restriction on the continued use of the water supply for drinking purposes.

Table H - Disinfection and disinfection by-products (DBPs)

Item	Parameter	Unit of measurement	Concentration or value (maximum unless otherwise stated)
1	Bromate **(i)**	mg/l	0.01
2	Chlorate	mg/l	0.7
3	Chlorite	mg/l	0.7
4	Bromoform	mg/l	0.1
5	Bromodichloromethane (BDCM)	mg/l	0.06
6	Chloroform	mg/l	0.3
7	Dibromochloromethane (DBCM)	mg/l	0.1
8	THMs **(ii)**	-	≤ 1.0

(i) Licensed Suppliers shall target to maintain at all times the **bromide** ion concentration to less than 0.05 mg/l and sample according to the same sampling frequency as Bromate.

(ii) The sum of detected concentration of chloroform, bromodichloromethane (BDCM), dibromochloromethane (DBCM) and bromoform as calculated in the equation below:

$$\text{Total trihalomethanes} = \frac{\textbf{C}\ \text{Bromoform}}{\textbf{PCV}\ \text{Bromoform}} + \frac{\textbf{C}\ \text{DBCM}}{\textbf{PCV}\ \text{DBCM}} + \frac{\textbf{C}\ \text{BDCM}}{\textbf{PCV}\ \text{BDCM}} + \frac{\textbf{C}\ \text{Chloroform}}{\textbf{PVC}\ \text{Chloroform}} \leq 1$$

C = Measured concentration in mg/ l

PCV = Prescribed concentration or Value in mg/ l

Schedule 2
Sampling frequency

Schedule 2: Sampling frequency

2

Sampling frequency requirements

Regulated activity	Relevant sampling testing criteria	
	Schedule I	Schedule II
Water production by thermal desalination (MSF, MED& Solar)	Table A,B,C,F,G & H	Table 3 & 7
Water production by membrane including Hybrid (thermal + membrane)	Table A,B,C,E,F,G & H	Table 4 & 7
Water abstracted from well fields	Table A,B,C,D,E,F,G & H	Table 5
Water transmission	Table A,B,C,F & H (Table E: in case of GRP)	Table 2 & 7
Water distribution	Table A,B,C,E,F,G & H	Table 1 & 7
Water distribution via tankers	Table A,C & F (Table E: in case of internal coating)	Table 6

Table 1 - Sampling frequency at distribution supply points to consumers

Water Supply Zone or combination of zones		Sampling frequency (number per annum)					
Volume distributed (m^3/d)	Population supplied	Table A Parameter			Table B Parameter		
		Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	≤500	2	4	8	2	3	4
101-1,000	501-5,000	3	6	12	2	3	4
1,001-2,000	5,001-10,000	3	6	12	3	4	6
2,001-4,000	10,001-20,000	6	12	24	3	4	6
4,001-10,000	20,001-50,000	12	24	36	6	8	12
10,001-20,000	50,001-100,000	12	24	36	6	8	24
20,001-30,000	100,001-150,000	18	36	48	6	12	24
>30,001	>150,000	18	48	72	8	12	36
Volume distributed (m^3/d)	Population supplied	Table C Parameter			Table D Parameter		
		Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	≤500	2	3	4			
101-1,000	501-5,000	2	3	4			
1,001-2,000	5,001-10,000	3	4	6			
2,001-4,000	10,001-20,000	3	4	6			
4,001-10,000	20,001-50,000	3	4	6			
10,001-20,000	50,001-100,000	4	6	8			
20,001-30,000	100,001-150,000	4	6	8			
>30,001	>150,000	6	8	10			

Table 1 (cont'd)

Volume distributed (m^3/d)	Population supplied	Table E Parameter			Table F Parameter		
		Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	≤500	2	3	4	6	12	24
101-1,000	501-5,000	2	3	4	6	12	24
1,001-2,000	5,001-10,000	2	3	4	6	12	24
2,001-4,000	10,001-20,000	2	3	4	12	24	48
4,001-10,000	20,001-50,000	2	3	4	12	24	48
10,001-20,000	50,001-100,000	3	4	6	18	36	72
20,001-30,000	100,001-150,000	3	4	6	18	36	72
>30,001	>150,000	4	6	8	36	48	72
Volume distributed (m^3/d)	Population supplied	Table G Parameter			Table H Parameter		
		Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	≤500	1	2	3	3	6	12
101-1,000	501-5,000	1	2	3	3	6	12
1,001-2,000	5,001-10,000	2	3	6	3	6	12
2,001-4,000	10,001-20,000	2	3	6	6	9	24
4,001-10,000	20,001-50,000	3	4	6	6	9	24
10,001-20,000	50,001-100,000	3	4	6	9	12	48
20,001-30,000	100,001-150,000	3	4	6	9	12	48
>30,001	>150,000	3	4	6	9	12	48

Table 2 - Sampling frequency at main pump station exit lines & connection supply point (water transmission)

Water pumping capacity	Sampling frequency (number per annum)					
Capacity (m^3/d)	Table A Parameter			Table B Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	2	4	8	2	4	8
101 - 1,000	2	4	8	2	4	8
1,001 - 4,000	2	4	8	2	4	8
4,001 - 10,000	3	6	12	3	6	12
10,001 - 20,000	3	6	12	3	6	12
20,001 - 30,000	3	6	12	3	6	12
30,001 - 60,000	6	12	24	6	12	24
60,001 - 100,000	6	12	24	6	12	24
100,001 - 150,000	12	24	36	6	12	24
>150,001	24	36	48	12	24	36
Capacity (m^3/d)	Table C Parameter			Table D Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	2	4	8			
101 - 1,000	2	4	8			
1,001 - 4,000	2	4	8			
4,001 - 10,000	2	4	8			
10,001 - 20,000	3	6	12			
20,001 - 30,000	3	6	12			
30,001 - 60,000	3	6	12			
60,001 - 100,000	3	6	12			
100,001 - 150,000	6	12	24			
>150,001	9	12	24			

Table 2 (cont'd)

Water pumping capacity	Sampling frequency (number per annum)					
Capacity (m^3/d)	Table E Parameter **(i)**			Table F Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	1	2	3	2	4	8
101 - 1,000	1	2	3	2	4	8
1,001 - 4,000	1	2	3	2	4	8
4,001 - 10,000	2	3	4	3	6	12
10,001 - 20,000	2	3	4	3	6	12
20,001 - 30,000	2	3	4	6	12	24
30,001 - 60,000	3	4	6	6	12	24
60,001 - 100,000	3	4	6	6	12	24
100,001 - 150,000	3	4	6	12	24	48
>150,001	4	6	8	18	36	72
Capacity (m^3/d)	Table G Parameter			Table H Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤100				3	6	12
101 - 1,000				3	6	12
1,001 - 4,000				3	6	12
4,001 - 10,000				3	6	12
10,001 - 20,000				6	9	24
20,001 - 30,000				6	9	24
30,001 - 60,000				6	9	24
60,001 - 100,000				6	9	24
100,001 - 150,000				9	12	48
>150,001				9	12	48

(i) In situations where glass reinforced plastics pipes are used in the water supply systems

Table 3 - Sampling frequencies at desalination Plants connection points by thermal desalination processes (multi stage flash, multi effect distillation, solar, thermal vapour compression)

Plant rated capacity	Sampling frequency (number per annum)					
Capacity (m^3/d)	Table A Parameter			Table B Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤1,000	12	30	48	2	4	8
1,001 - 10,000	15	36	60	3	6	12
10,001 - 20,000	30	60	240	3	6	12
20,001 - 50,000	60	120	240	6	12	24
50,001 - 100,000	60	180	240	6	12	24
100,001 - 200,000	180	240	360	12	24	48
200,001 - 300,000	240	360	720	12	24	48
300,001 - 500,000	240	360	720	18	36	72
>500,001	240	360	720	18	36	72
Capacity (m^3/d)	Table C Parameter			Table D Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤1,000	2	4	8			
1,001 - 10,000	2	4	8			
10,001 - 20,000	2	4	8			
20,001 - 50,000	2	4	8			
50,001 - 100,000	3	6	9			
100,001 - 200,000	3	6	9			
200,001 - 300,000	3	6	9			
300,001 - 500,000	6	9	12			
>500,001	6	9	12			

Table 3 (cont'd)

Capacity (m^3/d)	Table E Parameter			Table F Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤1,000				2	4	8
1,001-10,000				2	4	8
10,001-20,000				2	4	8
20,001-50,000				3	6	12
50,001-100,000				3	6	12
100,001-200,000				3	6	12
200,001-300,000				5	12	20
300,001-500,000				12	24	40
>500,000				24	36	48
Capacity (m^3/d)	Table G Parameter			Table H Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤1,000	1	2	3	2	4	8
1,001 - 10,000	1	2	3	6	12	24
10,001 - 20,000	1	2	3	6	12	24
20,001 - 50,000	1	2	3	12	24	48
50,001 - 100,000	1	2	3	12	24	48
100,001 - 200,000	3	4	6	12	24	48
200,001 - 300,000	3	4	6	12	24	48
300,001 - 500,000	3	4	6	12	24	48
>500,001	3	4	6	12	24	48

Table 4 - Sampling frequencies at desalination connection points by electrically / mechanically driven desalination process (membrane, i.e. RO)

Plant capacity	Sampling frequency (number per annum)					
Capacity (m^3/d)	Table A Parameter			Table B Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤1,000	12	30	48	2	4	8
1,001 - 10,000	15	36	60	3	6	12
10,001 - 20,000	30	60	240	3	6	12
20,001 - 50,000	60	120	240	6	12	24
50,001 - 100,000	60	180	240	6	12	24
100,001 - 200,000	180	240	360	12	24	48
200,001 - 300,000	240	360	720	12	24	48
300,001 - 500,000	240	360	720	18	36	72
>500,001	240	360	720	18	36	72
Capacity (m^3/d)	Table C Parameter			Table D Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤1,000	2	4	8			
1,001 - 10,000	2	4	8			
10,001 - 20,000	2	4	8			
20,001 - 50,000	2	4	8			
50,001 - 100,000	3	6	9			
100,001 - 200,000	3	6	9			
200,001 - 300,000	3	6	9			
300,001 - 500,000	6	9	12			
>500,001	6	9	12			

Table 4 (cont'd)

Capacity (m^3/d)	Table E Parameter			Table F Parameter		
	Reduced	Standard	Incteased	Reduced	Standard	Increased
≤1,000	2	4	8	2	4	8
1,001 - 10,000	2	4	8	2	4	8
10,001 - 20,000	2	4	8	2	4	8
20,001 - 50,000	2	4	8	3	6	12
50,001 - 100,000	3	6	12	3	6	12
100,001 - 200,000	3	6	12	3	6	12
200,001 - 300,000	3	6	12	5	12	20
300,001 - 500,000	6	12	24	12	24	40
>500,001	6	12	24	24	36	48
Capacity (m^3/d)	Table G Parameter			Table H Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤1,000	1	2	3	2	4	8
1,001 - 10,000	1	2	3	6	12	24
10,001 - 20,000	1	2	3	6	12	24
20,001 - 50,000	1	2	3	9	18	36
50,001 - 100,000	1	2	3	9	18	36
100,001 - 200,000	3	4	6	9	18	36
200,001 - 300,000	3	4	6	12	24	48
300,001 - 500,000	3	4	6	12	24	48
>500,001	3	4	6	12	24	48

Remarks:

(i) Table 4 sampling frequency to be adopted for hybrid desalination plants (thermal and membrane).

Table 5 - Sampling frequencies at well field connection (ground water)

Production capacity	Sampling frequency (number per annum)					
Capacity (m^3/d)	Table A Parameter			Table B Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	2	4	8	2	4	8
101 - 1,000	3	6	12	2	4	8
1,001 - 2,000	6	12	24	2	4	8
2,001 - 4,000	12	24	48	3	6	12
4,001 - 10,000	30	60	120	3	6	12
>10,001	30	60	120	6	12	24
Capacity (m^3/d)	Table C Parameter			Table D Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	2	4	8	2	3	4
101 - 1,000	2	4	8	2	3	4
1,001 - 2,000	3	6	12	3	6	12
2,001 - 4,000	3	6	12	3	6	12
4,001 - 10,000	6	12	24	6	12	24
>10,001	12	24	36	6	12	24
Capacity (m^3/d)	Table E Parameter			Table F Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	2	4	8	2	4	8
101 - 1,000	2	4	8	2	4	8
1,001 - 2,000	2	4	8	2	4	8
2,001 - 4,000	4	6	12	3	6	12
4,001 - 10,000	4	6	12	6	12	24
>10,001	8	12	24	12	24	48
Capacity (m^3/d)	Table G Parameter			Table H Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
≤100	1	2	3	6	12	24
101 - 1,000	1	2	3	6	12	24
1,001 - 2,000	1	2	3	12	24	48
2,001 - 4,000	3	4	6	12	24	48
4,001 - 10,000	3	4	6	12	24	48
>10,001	3	8	12	12	24	48

Table 6 - Sampling frequencies for road vehicles (tankers)

Tanker's capacity / size	Sampling frequency (number per annum)					
	Table A Parameter			Table B Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
For all sizes	1	2	4			
Tanker's capacity / size	Table C Parameter			Table D Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
For all sizes	1	2	4			
Tanker's capacity / size	Table E **(i)** Parameter			Table F Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
For all sizes	1	2	4	1	2	4
Tanker's capacity / size	Table G Parameter			Table H Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
For all sizes						

(i) Tankers internally coated (paint) are required to test for total organic compounds (TOC) and relevant Parameters form Table E (1,2-Dichloroethane, Toluene, 1,2-Dichlorobenzene1, 4-Dichlorobenzene ,Vinyl Chloride).

Table 7 - Sampling frequencies for potable water storage tanks, reservoirs and water towers (water body)

Per water body	Sampling frequency (number per annum)					
Capacity (m^3)	Table A Parameter			Table B Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
<2,000	2	2	8			
2,000-10,000	2	2	8			
10,001-50,000	2	3	9			
50,001-200,000	3	4	9			
>200,000	4	6	12			
Capacity (m^3)	Table C Parameter			Table D Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
<2,000						
2,000-10,000						
10,001-50,000						
50,001-200,000						
>200,000						
Capacity (m^3)	Table E Parameter			Table F Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
<2,000				2	2	8
2,000-10,000				2	2	8
10,001-50,000				2	3	9
50,001-200,000				3	4	9
>200,000				4	6	12
Capacity (m^3)	Table G Parameter			Table H Parameter		
	Reduced	Standard	Increased	Reduced	Standard	Increased
<2,000						
2,000-10,000						
10,001-50,000						
50,001-200,000						
>200,000						

Schedule 3
Initial entries forms

Schedule 3: Initial entries forms

3

Form A

Water production Licensed Supplier

Desalination plant		
Name of production company		
Site location		
Total production capacity		
Desalination technology		
Number of units		
Year of construction		
Unit ID number		
Production capacity		
Remineralisation Plant name		
Storage capacity		
Number of storage tanks		
Desalination Plant name		
Storage tank type		
Storage tank capacity		
Material of construction And internal coating		
Sample point ID (Identification number)		
Chemicals		
	Pre treatment chemicals	Remineralisation chemicals
Chemical No.		
Scientific name		
Brand name		
Required concentration		
Dosing rate		
Type of packing		
Type of storage and shelve life		
Testing method (according to the sampling testing criteria table)		
Test method No.		
Parameter		
Name of test method		
Method standard		
Description		
Internal or external lab (name of lab)		
Remarks		

Remarks:

Please attach a schematic showing the flow diagram, Sampling Points location and remineralisation Plant process drawings.

Form B

Water distribution Licensed Supplier

Site information	
Site ID	
Site description	
Site location	
Volume (m^3/d)	
Population	
Region ID	
Annual frequency plan	
Testing method (according to the sampling testing criteria table)	
Test method No.	
Parameter	
Name of test method	
Method standard	
Description	
Internal or external lab (name of lab)	
Remarks	

Form C

Water transmission Licensed Supplier

Site information								
Sample location	Water pumping capacity (m^3/d) or reservoirs capacity (m^3)		Annual frequency plan					
	Pump Station	Reservoir	Table A	Table B	Table C	Table E	Table F	Table H

Testing method (according to the sampling testing criteria table)	
No.	
Test method Parameter	
Name of test method	
Method standard	
Description	
Internal or external lab (name of lab)	
Remarks	

Form D

Ground water supplies

Well production site/ capacity (m^3/d)	Annual frequency plan							
	Table A	Table B	Table C	Table D	Table E	Table F	Table G	Table H

Testing method (according to the sampling testing criteria table)	
No.	
Test method Parameter	
Name of test method	
Method standard	
Description	
Internal or external lab (name of lab)	
Remarks	

Form E

Tankered water supplies

Tanker registration number / size or capacity	Annual frequency plan			
	Table A	Table C	Table E	Table F

Testing method (according to the sampling testing criteria table)	
Test method No.	
Parameter	
Name of test method	
Method standard	
Description	
Internal or external lab (name of lab)	
Remarks	

Schedule 4

Drinking water performance indices for Licensed Suppliers

Schedule 4: Drinking water performance indices

4

Water distribution Licensed Supplier index

I - Disinfection & disinfection by-product control index (DCI) According to Table 1 of Schedule 2:				
Parameter	Required tests according to Schedule 2	Done	Failed	Passed
Residual Cl2				
Bromate				
THM's				
Coliforms				
E. Coli				
Total				
II - Reservoirs integrity index (RII) according to Table 7 of Schedule 2:				
Parameter	Required tests according to Schedule 2	Done	Failed	Passed
Residual Cl2				
Total bacteria count				
Coliforms				
Total				
III - Distribution maintenance index (DMI) according to Table 1 of Schedule 2:				
Parameter	Required tests according to Schedule 2	Done	Failed	Passed
Colour				
Turbidity				
Odour				
Taste				
pH				
Iron				
Copper				
Manganese				
Total				

Water transmission Licensed Supplier index

I - Disinfection & disinfection by-product control index (DCI) according to Table 2 of Schedule 2:				
Parameter	Required tests according to Schedule 2	Done	Failed	Passed
Residual Cl2				
Bromate				
Coliforms				
E. Coli				
Total				
II - Reservoirs integrity index (RII) according to Table 7 of Schedule 2:				
Parameter	Required tests according to Schedule 2	Done	Failed	Passed
Residual Cl2				
Total bacteria Count				
Coliforms				
Total				
III - Transmission maintenance index (TMI) according to Table 2 of Schedule 2:				
Parameter	Required tests according to Schedule 2	Done	Failed	Passed
Turbidity				
pH				
Iron				
Copper				
Manganese				
Total				

Water production Licensed Supplier index

I - Disinfection & disinfection by-product control index (DCI) according to Table 3 or 4 of Schedule 2:				
Parameter	Required tests according to Schedule 2	Done	Failed	Passed
Residual Cl2				
Bromate				
Coliforms				
E. Coli				
THM's				
Total				
II - Reservoirs integrity index (RII) according to Table 7 of Schedule 2:				
Parameter	Required tests according to Schedule 2	Done	Failed	Passed
Residual Cl2				
Total bacteria count				
Coliforms				
Total				
III - Production operational index (POI) according to Table 3 or 4 of Schedule 2:				
Parameter	Required tests according to Schedule 2	Done	Failed	Passed
Turbidity				
pH				
Iron				
Copper				
TDS				
LSI				
Total				
Manganese				
Total				

Regulation and Supervision Bureau
for
the water, wastewater and electricity sector
in the Emirate of Abu Dhabi

P.O Box: 32800 Abu Dhabi, U.A.E
e-mail: bureau@rsb.gov.ae
www.rsb.gov.ae

Publication No. ER/R04/003

The Water Quality Regulations (Fourth Edition)