



## WATER QUALITY REGULATIONS 2021 SCHEDULE 2 AMENDMENT

EFFECTIVE DATE: 31/03/2022





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## Foreword

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In response to the emergent innovative operations, processes and technologies, the DoE has undertaken a review of the Water Quality Regulations.

Schedule 2 of the Regulations has been amended to encapsulate new regulated activities (e.g., atmospheric water recovery).

This revised Regulations amendment is effective from 31 March 2022.

The Water Quality Regulations are intended to provide for the supply of wholesome drinking water to Consumers and reflect the current guidance by the World Health Organization (WHO). They have been developed following extensive consultation with the sector companies and other relevant stakeholders.

They are also available in Arabic, but the reader should note they were first written in English. They may also be downloaded from the DoE's website at [www.doe.gov.ae](http://www.doe.gov.ae).

**Ahmed Mohamed Al Rumaithi**

**Undersecretary-Department of Energy**



# 1. Introduction

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## 1.1 Purpose

- 1.1.1 The purpose of this Regulations amendment is to establish a legal framework for the provision of wholesome water to Consumers.

## 1.2 Scope

- 1.2.1 This Regulations amendment applies to all Licensees, Entities and Consumers who operate or receive wholesome water.
- 1.2.2 Nothing in this Regulations amendment is intended to conflict with or affect the operation of any relevant existing federal and Abu Dhabi Laws.

## 1.3 References

- 1.3.1 The DoE also considers the World Health Organization (WHO) Water Quality Guidelines as the primary reference for the Regulations. The DoE may also consider other relevant regulatory guidance regarding water quality, including but not limited to:
- a) Australian Drinking Water Guidelines;
  - b) Drinking Water Standards for New Zealand;
  - c) FANR-REG-19 “Regulation for Existing Exposure Situations”;
  - d) GCC Standardization Organization (GSO) Drinking Water Standards;
  - e) Ministry of Industry and Advanced Technology;
  - f) National Primary Drinking Water Regulations; and
  - g) Safe Drinking Water Act.

## 1.4 Distribution

- 1.4.1 Soft copies of the Regulations will be available on the DoE webpage.



## 2. Annexes

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### Schedule 2. Sampling Frequency



## Schedule 2: Sampling Frequency

### Sampling Frequency Requirements

| Regulated activity                                                                                                                                            | Relevant sampling testing criteria             |             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------|
|                                                                                                                                                               | Schedule I                                     | Schedule II |
| Water Desalination by thermal process (e.g. MSF, MED & solar)                                                                                                 | Table A, B, C, F, G & H                        | Table 3 & 6 |
| Water Desalination by membrane process including hybrid Desalination (e.g. thermal + membrane)                                                                | Table A, B, C, E, F, G & H                     | Table 3 & 6 |
| Water Desalination or production by other process (e.g. atmospheric water recovery, mechanical vapor compression, thermal vapor compression, electrodialysis) | Table A, B, C, E, F, G & H                     | Table 3 & 6 |
| Water abstracted from well fields (ground water)                                                                                                              | Table A, B, C, D, E, F, G & H                  | Table 4 & 6 |
| Water Transmission                                                                                                                                            | Table A, B, C, F & H (Table E: for GRP)        | Table 2 & 6 |
| Water Distribution                                                                                                                                            | Table A, B, C, E, F, G & H                     | Table 1 & 6 |
| Water Tanker                                                                                                                                                  | Table A, C & F (Table E: for internal coating) | Table 5     |



**Table 1 - Sampling Frequency at Distribution Water Supply Zones**

| Water Supply Zone or combination of zones |                     | Sampling frequency (number per annum) |          |           |                   |          |           |
|-------------------------------------------|---------------------|---------------------------------------|----------|-----------|-------------------|----------|-----------|
| Volume distributed (m <sup>3</sup> /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        |
| >30,000                                   | >150,000            | 18                                    | 48       | 72        | 8                 | 12       | 36        |

  

| Volume distributed (m <sup>3</sup> /d) | Population supplied | Table C Parameter |          |           | Table E Parameter |          |           |
|----------------------------------------|---------------------|-------------------|----------|-----------|-------------------|----------|-----------|
|                                        |                     | Reduced           | Standard | Increased | Reduced           | Standard | Increased |
| ≤1,000                                 | ≤5000               | 2                 | 3        | 4         | 2                 | 3        | 4         |
| 1,001-10,000                           | 5,001-50,000        | 3                 | 4        | 6         | 2                 | 3        | 4         |
| 10,001-30,000                          | 50,001-150,000      | 4                 | 6        | 8         | 3                 | 4        | 6         |
| >30,000                                | >150,000            | 6                 | 8        | 10        | 4                 | 6        | 8         |

  

| Volume distributed (m <sup>3</sup> /d) | Population supplied | Table F Parameter (i) |          |           | Legionella Parameter |          |           |
|----------------------------------------|---------------------|-----------------------|----------|-----------|----------------------|----------|-----------|
|                                        |                     | Reduced               | Standard | Increased | Reduced              | Standard | Increased |
| ≤2,000                                 | ≤10,000             | 6                     | 12       | 24        | 1                    | 2        | 4         |
| 2,001-10,000                           | 10,001-50,000       | 12                    | 24       | 48        | 2                    | 4        | 8         |
| 10,001-30,000                          | 50,001-150,000      | 18                    | 36       | 72        | 4                    | 8        | 16        |
| >30,000                                | >150,000            | 36                    | 48       | 72        | 6                    | 12       | 24        |

  

| Volume distributed (m <sup>3</sup> /d) | Population supplied | Table G Parameter |          |           | Table H Parameter |          |           |
|----------------------------------------|---------------------|-------------------|----------|-----------|-------------------|----------|-----------|
|                                        |                     | Reduced           | Standard | Increased | Reduced           | Standard | Increased |
| ≤2,000                                 | ≤10,000             | 1                 | 2        | 3         | 3                 | 6        | 12        |
| 2,001-10,000                           | 10,001-50,000       | 1                 | 2        | 3         | 6                 | 9        | 24        |
| >10,000                                | >50,000             | 1                 | 2        | 3         | 9                 | 12       | 48        |

**Notes:**

- i. For all Table F Parameters, except Legionella.



**Table 2 - Sampling Frequency at Transmission Water Supply Zones**

| Water pumping capacity       |                   | Sampling frequency (number per annum) |           |                   |          |           |
|------------------------------|-------------------|---------------------------------------|-----------|-------------------|----------|-----------|
| Capacity (m <sup>3</sup> /d) | Table A Parameter |                                       |           | Table B Parameter |          |           |
|                              | Reduced           | Standard                              | Increased | Reduced           | Standard | Increased |
| ≤4,000                       | 2                 | 4                                     | 8         | 2                 | 4        | 8         |
| 4,001-30,000                 | 3                 | 6                                     | 12        | 3                 | 6        | 12        |
| 30,001-100,000               | 6                 | 12                                    | 24        | 6                 | 12       | 24        |
| 100,001-150,000              | 12                | 24                                    | 36        | 6                 | 12       | 24        |
| >150,000                     | 24                | 36                                    | 48        | 12                | 24       | 36        |

  

| Capacity (m <sup>3</sup> /d) | Table C Parameter |          |           | Table E Parameter (i) |          |           |
|------------------------------|-------------------|----------|-----------|-----------------------|----------|-----------|
|                              | Reduced           | Standard | Increased | Reduced               | Standard | Increased |
| ≤4,000                       | 2                 | 4        | 8         | 1                     | 2        | 3         |
| 4,001-10,000                 | 2                 | 4        | 8         | 2                     | 3        | 4         |
| 10,001-30,000                | 3                 | 6        | 12        | 2                     | 3        | 4         |
| 30,001-100,000               | 3                 | 6        | 12        | 3                     | 4        | 6         |
| 100,001-150,000              | 6                 | 12       | 24        | 3                     | 4        | 6         |
| >150,000                     | 9                 | 12       | 24        | 4                     | 6        | 8         |

  

| Capacity (m <sup>3</sup> /d) | Table F Parameter (ii) |          |           | Legionella Parameter |          |           |
|------------------------------|------------------------|----------|-----------|----------------------|----------|-----------|
|                              | Reduced                | Standard | Increased | Reduced              | Standard | Increased |
| ≤4,000                       | 2                      | 4        | 8         | 1                    | 2        | 4         |
| 4,001-20,000                 | 3                      | 6        | 12        | 2                    | 3        | 6         |
| 20,001-100,000               | 6                      | 12       | 24        | 3                    | 4        | 8         |
| 100,001-150,000              | 12                     | 24       | 48        | 4                    | 8        | 16        |
| >150,000                     | 18                     | 36       | 72        | 5                    | 10       | 18        |

  

| Volume distributed (m <sup>3</sup> /d) | Population supplied | Table H Parameter |          |           |
|----------------------------------------|---------------------|-------------------|----------|-----------|
|                                        |                     | Reduced           | Standard | Increased |
| ≤10,000                                | ≤10,000             | 3                 | 6        | 12        |
| 10,001-100,000                         | 10,001-50,000       | 6                 | 9        | 24        |
| >100,000                               | >50,000             | 9                 | 12       | 48        |

**Notes:**

- Table E Sampling is for GRP.
- For all Table F Parameters, except Legionella.



**Table 3 - Sampling Frequency at Desalination or Production Water Supply Zones**

| Plant capacity               | Sampling frequency (number per annum) |          |           |                   |          |           |
|------------------------------|---------------------------------------|----------|-----------|-------------------|----------|-----------|
| Capacity (m <sup>3</sup> /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        |
| >300,000                     | 240                                   | 360      | 720       | 18                | 36       | 72        |

  

| Capacity (m <sup>3</sup> /d) | Table C Parameter |          |           | Table E Parameter (i) |          |           |
|------------------------------|-------------------|----------|-----------|-----------------------|----------|-----------|
|                              | Reduced           | Standard | Increased | Reduced               | Standard | Increased |
| ≤50,000                      | 2                 | 4        | 8         | 2                     | 4        | 8         |
| 50,001-300,000               | 3                 | 6        | 9         | 3                     | 6        | 12        |
| >300,000                     | 6                 | 9        | 12        | 6                     | 12       | 24        |

  

| Capacity (m <sup>3</sup> /d) | Table F Parameter (ii) |          |           | Legionella Parameter |          |           |
|------------------------------|------------------------|----------|-----------|----------------------|----------|-----------|
|                              | Reduced                | Standard | Increased | Reduced              | Standard | Increased |
| ≤20,000                      | 2                      | 4        | 8         | 1                    | 2        | 4         |
| 20,001-200,000               | 3                      | 6        | 12        | 2                    | 3        | 6         |
| 200,001-300,000              | 5                      | 12       | 20        | 3                    | 5        | 10        |
| 300,001-500,000              | 12                     | 24       | 40        | 4                    | 8        | 12        |
| >500,000                     | 24                     | 36       | 48        | 6                    | 12       | 24        |

  

| Capacity (m <sup>3</sup> /d) | Table G Parameter |          |           | Table H Parameter |          |           |
|------------------------------|-------------------|----------|-----------|-------------------|----------|-----------|
|                              | Reduced           | Standard | Increased | Reduced           | Standard | Increased |
| ≤1,000                       | 1                 | 2        | 3         | 2                 | 4        | 8         |
| 1,000-20,000                 | 1                 | 2        | 3         | 6                 | 12       | 24        |
| 20,001-200,000               | 1                 | 2        | 3         | 9                 | 18       | 36        |
| >200,000                     | 1                 | 2        | 3         | 12                | 24       | 48        |

**Notes:**

- Table E Sampling is for Water Desalination by membrane process including hybrid Desalination (e.g. thermal + membrane).
- For all Table F Parameters, except Legionella.



**Table 4 - Sampling Frequency at Well Field Water Supply Zones (Ground Water)**

| Production capacity          |                   | Sampling frequency (number per annum) |           |                   |          |           |
|------------------------------|-------------------|---------------------------------------|-----------|-------------------|----------|-----------|
| Capacity (m <sup>3</sup> /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        |
| >10,000                      | 30                | 60                                    | 120       | 6                 | 12       | 24        |

  

| Capacity (m <sup>3</sup> /d) | Table C Parameter |          |           | Table D Parameter |          |           |
|------------------------------|-------------------|----------|-----------|-------------------|----------|-----------|
|                              | Reduced           | Standard | Increased | Reduced           | Standard | Increased |
| ≤1,000                       | 2                 | 4        | 8         | 2                 | 3        | 4         |
| 1,001-4,000                  | 3                 | 6        | 12        | 3                 | 6        | 12        |
| 4,001-10,000                 | 6                 | 12       | 24        | 6                 | 12       | 24        |
| >10,000                      | 12                | 24       | 36        | 6                 | 12       | 24        |

  

| Capacity (m <sup>3</sup> /d) | Table E Parameter |          |           | Table F Parameter (i) |          |           |
|------------------------------|-------------------|----------|-----------|-----------------------|----------|-----------|
|                              | Reduced           | Standard | Increased | Reduced               | Standard | Increased |
| ≤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        |
| >10,000                      | 8                 | 12       | 24        | 12                    | 24       | 48        |

  

| Capacity (m <sup>3</sup> /d) | Legionella Parameter |          |           | Table G Parameter |          |           |
|------------------------------|----------------------|----------|-----------|-------------------|----------|-----------|
|                              | Reduced              | Standard | Increased | Reduced           | Standard | Increased |
| ≤2,000                       | 1                    | 2        | 4         | 1                 | 2        | 3         |
| 2,001-4,000                  | 2                    | 3        | 6         | 1                 | 2        | 3         |
| 4,001-10,000                 | 4                    | 6        | 12        | 1                 | 2        | 3         |
| >10,000                      | 5                    | 8        | 16        | 1                 | 2        | 3         |

  

| Capacity (m <sup>3</sup> /d) | Table H Parameter |          |           |
|------------------------------|-------------------|----------|-----------|
|                              | Reduced           | Standard | Increased |
| ≤1,000                       | 6                 | 12       | 24        |
| >1,000                       | 12                | 24       | 48        |

**Notes:**

- i. For all Table F Parameters, except Legionella.



**Table 5 - Sampling Frequency for Water Tankers**

| Tanker's capacity / size |  | Sampling frequency (number per annum) |          |           |                        |          |           |
|--------------------------|--|---------------------------------------|----------|-----------|------------------------|----------|-----------|
| Capacity                 |  | Table A Parameter                     |          |           | Table C Parameter      |          |           |
|                          |  | Reduced                               | Standard | Increased | Reduced                | Standard | Increased |
| For all sizes            |  | 1                                     | 2        | 4         | 1                      | 2        | 4         |
| Capacity                 |  | Table E (i) Parameter                 |          |           | Table F Parameter (ii) |          |           |
|                          |  | Reduced                               | Standard | Increased | Reduced                | Standard | Increased |
| For all sizes            |  | 1                                     | 2        | 4         | 1                      | 2        | 4         |
| Capacity                 |  | Legionella Parameter                  |          |           |                        |          |           |
|                          |  | Reduced                               | Standard | Increased |                        |          |           |
| For all sizes            |  | 1                                     | 2        | 4         |                        |          |           |

**Notes:**

- Tankers internally coated (paint) are required to test for total organic compounds (TOC) and relevant Parameters from Table E (1, 2-Dichloroethane, Toluene, 1, 2-Dichlorobenzene, 1, 4- Dichlorobenzene, Vinyl Chloride).
- For all Table F Parameters, except Legionella.



**Table 6 - Sampling Frequency for Water Storage Tanks, Reservoirs and Water Towers**

| Per water body             | Sampling frequency (number per annum) |          |           |                       |          |           |
|----------------------------|---------------------------------------|----------|-----------|-----------------------|----------|-----------|
| Capacity (m <sup>3</sup> ) | Table A Parameter                     |          |           | Table F Parameter (i) |          |           |
|                            | Reduced                               | Standard | Increased | Reduced               | Standard | Increased |
| <2,000                     | 2                                     | 2        | 8         | 2                     | 2        | 8         |
| 2,000-10,000               | 2                                     | 2        | 8         | 2                     | 2        | 8         |
| 10,001-50,000              | 2                                     | 3        | 9         | 2                     | 3        | 9         |
| 50,001-200,000             | 3                                     | 4        | 9         | 3                     | 4        | 9         |
| >200,000                   | 4                                     | 6        | 12        | 4                     | 6        | 12        |

  

| Capacity (m <sup>3</sup> ) | Legionella Parameter |          |           |
|----------------------------|----------------------|----------|-----------|
|                            | Reduced              | Standard | Increased |
| <2,000                     | 2                    | 2        | 8         |
| 2,000-10,000               | 2                    | 2        | 8         |
| 10,001-50,000              | 2                    | 4        | 9         |
| 50,001-200,000             | 3                    | 4        | 9         |
| >200,000                   | 4                    | 6        | 12        |

**Notes:**

- i. For all Table F Parameters, except Legionella.



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