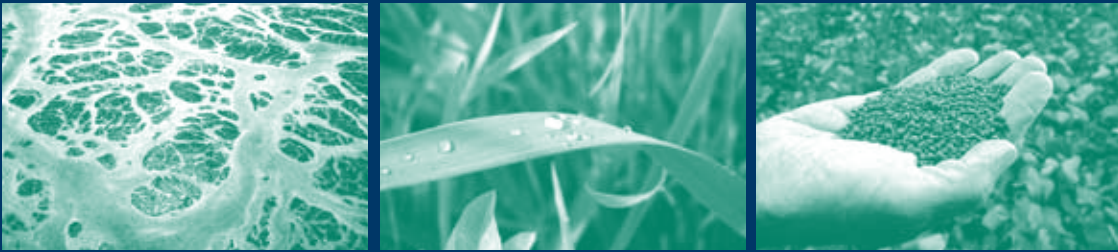


Recycled Water and Biosolids Regulations 2010



June 2010

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

The Recycled Water and Biosolids Regulations 2010

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

June 2010

Foreword

The Regulation and Supervision Bureau is established in Abu Dhabi law to oversee the economic and technical activities of the electricity, water and wastewater 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 electricity, water and wastewater services to customers. These regulations have been produced with this primary aim in mind.

The Regulations establish a legal framework for the safe and economic disposal of Recycled Water and Biosolids in the Emirate of Abu Dhabi and have been developed following an extensive consultation with the sector

These Regulations are effective from 1 June 2010 and shall be cited as the Recycled Water and Biosolids Regulations 2010.

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

NICHOLAS CARTER
Director General

1 June 2010

List of revisions

Revision	Date	Prepared by:	Checked by:	Issued to:
1.0	June 2010	RMS	MG & CH	Publication

Note: Document numbering

These Regulations use the following numbering system:

Parts: are referred by integers

(e.g. 1,2,...)

Regulations: are referred by one full stop between numbers

(e.g. 1.1,1.2,...)

Clauses: are referred by two full stops between numbers.

(e.g. 2.2.1, 2.3.1)

Table of contents

1.	Introduction	7
	1.1 Citation	7
	1.2 Commencement	7
	1.3 Scope	7
2.	Definitions	9
	2.1 Interpretation	9
	2.2 Definitions	9
3.	Disposal of Recycled Water and Biosolids	13
	3.1 Prohibition	13
	3.2 Discharges to the environment	13
	3.3 Self supply schemes	13
4.	Supply of Recycled Water and Biosolids	15
	4.1 Supply Agreements	15
	4.2 Applying for a Supply Agreement	15
	4.3 Issue of a Supply Agreement	15
	4.4 Notification	16
	4.5 Supply Agreement application refused	16
	4.6 Unreasonable conditions	16
	4.7 Supply Agreement details	16
	4.8 Varying a Supply Agreement	17
	4.9 Variation notice	17
5.	Safety Plans	19
	5.1 Development of Safety Plan	19
	5.2 Review of Safety Plan	19
	5.3 Scope of Safety Plans	20
6.	Safety Plan monitoring programme	21
	6.1 Development of a Safety Plan monitoring programme	21
	6.2 Data collection and reporting	21
	6.3 Auditing	22
	6.4 Monitoring points	22
	6.5 Monitoring equipment	22
	6.6 Sampling requirements	23
	6.7 Analytical systems and methods	23
7.	Compliance	25
	7.1 Assessing compliance	25
	7.2 Improvement notices	25
	7.3 Urgent action	26
	7.4 Right of appeal	26
	7.5 Enforcement	27

Table of contents (cont.)

8.	Appeals and arbitration	29
	8.1 Appeals	29
	8.2 Appeal form	29
	8.3 Notice of appeal	29
	8.4 Timescale for appeal	29
	8.5 Extension of timescale to appeal	30
	8.6 Bureau consideration	30
	8.7 Bureau decision	30
	8.8 Arbitration	31
9.	Demand management	33
	9.1 Measuring production	33
	9.2 Measuring supply	33
	9.3 Registers	33
	9.4 Meeting demand	33
	9.5 Efficient use	34
10.	Education and guidance	35
	10.1 Education and guidance	35
	10.2 Awareness of Recycled Water and Biosolids quality	35
11.	Recycled Water and Biosolids Review Panel	37
	11.1 Establishment of the Panel	37
	11.2 Role of the Panel	37
	11.3 Quality standards	37
	11.4 Education strategies	37
	11.5 Analytical systems and methods	38
	11.6 Panel members	38
	11.7 Panel rules	39
	Schedules	41

Introduction

1.1 Citation

- 1.1.1 These Regulations shall be cited as the Recycled Water and Biosolids Regulations 2010.
- 1.1.2 These Regulations are issued by the Regulation and Supervision Bureau pursuant to Article (62) of Law No (2) of 1998, as amended.

1.2 Commencement

- 1.2.1 These Regulations come into force on 1 June 2010 except in respect of any Wastewater Disposal activity that is ongoing at that date.
- 1.2.2 A Sewerage Services Licensee who is party to an ongoing Wastewater Disposal activity on 1 June 2010:
 - (a) must comply with these Regulations by 1 June 2011; or
 - (b) agree in writing with the Bureau an alternative programme for compliance by 1 December 2010.
- 1.2.3 These Regulations may be modified or revoked at any time.

1.3 Scope

- 1.3.1 These Regulations apply to all Sewerage Services Licensees and any Entity who receives Recycled Water or Biosolids in the Emirate of Abu Dhabi.
- 1.3.2 Nothing in these Regulations is intended to conflict with or affect the operation of:
 - (a) UAE Federal Law No (24) of 1999 for the Protection and Development of the Environment and its executive orders;
 - (b) Law No. (21) of 2005 for Waste Management in the Emirate of Abu Dhabi; or
 - (c) Decree of the Crown Prince, Chairman of the Executive Council No. (42) of 2009 Concerning The Environmental Health and Safety Management System in the Emirate of Abu Dhabi (EHSMS).

Definitions

2.1 Interpretation

- 2.1.1 Words which are defined under this Part 2 begin with capital letters when used in the Regulations.
- 2.1.2 Words or expressions defined in the singular have the same meaning when used in the plural and words or expressions defined in the plural have the same meaning when used in the singular.
- 2.1.3 A word or expression which is defined in Law No (2) and used, but not defined, in these Regulations, has the same meaning as in Law No (2).

2.2 Definitions

Biosolids – sewage sludge produced by a Wastewater Treatment System that has been treated and stabilised to the extent that it can be safely supplied for Reuse activities.

Bureau – the Regulation and Supervision Bureau for the water, wastewater and electricity sectors in the Emirate of Abu Dhabi as established by the Law No (2).

Collection Licensee – the holder of a licence, issued by the Bureau, for the collection of Wastewater.

Disposal – the safe and sustainable disposal, recycling or sale of various products produced from the Wastewater Treatment System.

Disposal Licensee – the holder of a licence, issued by the Bureau, for the Disposal of Recycled Water and Biosolids.

Disposal System – a system consisting, wholly or mainly, of pipes, pumping stations, tankers and other plant and equipment owned, or operated, by a Licensee and used for the Disposal of Recycled Water and Biosolids.

End-user – an Entity authorised to receive and use Recycled Water and Biosolids.

Entity – an individual, establishment, company, association, society, partnership, corporation, municipality, institution, government organisation, agency or group.

Grey Water – Wastewater sourced solely from baths, showers, hand basins and domestic laundries.

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

Licensee – the holder of a licence issued by the Bureau.

Panel or Recycled Water and Biosolids Review Panel set up under Part 11 of these Regulations.

Point-of-transfer – the location at which Recycled Water or Biosolids are transferred from the Disposal Licensee to an End-user.

Priority Rights – the allocation of a resource for efficient and socially or environmentally beneficial use according to the sequence of application for rights to that resource.

Public Nuisance – anything that disturbs the general public's reasonable use of property, endangers life and health, or is offensive to the general public.

Recycled Water – treated liquid effluent produced by a Wastewater Treatment System that is suitable for Reuse.

Reuse – the release to the environment or recycling of Recycled Water and Biosolids for the benefit of the environment or general public.

Safety Plan – a plan for safeguarding the quality and quantity of Recycled Water and Biosolids up to the Point-of-transfer.

Sewerage Services Licensee – the holder of a licence, issued by the Bureau, for one or more of the activities of collection, treatment or disposal of Wastewater.

Sewerage System – a system consisting, wholly or mainly, of sewerage pipes, pumping stations, tankers and other plant and equipment owned or operated by a Collection Licensee and used for the transportation of Wastewater from premises or customers to a Wastewater Treatment System.

Supply Agreement – an agreement between an End-user and a Disposal Licensee which defines the terms and conditions of supply for Recycled Water or Biosolids.

Trade Effluent – any Wastewater discharged to a sewerage system which is produced in the course of any industrial, commercial, agricultural, medical, scientific or trade activity, but does not include domestic Wastewater.

Treatment Licensee – the holder of a licence, issued by the Bureau, for the treatment of Wastewater.

Treatment System – a system consisting, wholly or mainly, of pipes, pumping stations, tankers and other plant and equipment that is owned, or operated, by a Licensee and used for Wastewater treatment.

UAE – United Arab Emirates.

Wastewater – The water-borne wastes generated by any domestic, commercial or industrial activity including Grey Water and Trade Effluent.

3.1 Prohibition

- 3.1.1 No Disposal Licensee shall supply:
- (a) Recycled Water that does not meet the criteria set out in Schedule A of these Regulations;
 - (b) Biosolids that do not meet the criteria set out in Schedule B of these Regulations; or
 - (c) Recycled Water or Biosolids without a Supply Agreement.

3.2 Discharges to the environment

- 3.2.1 A Treatment Licensee or Disposal Licensee may discharge Recycled Water to the environment or Biosolids to landfill in fulfilment of the contingency planning requirements of Clause 5.3.1(e) of these Regulations.
- 3.2.2 Any discharge made by a Licensee under Clause 3.2.1 must be:
- (a) made in accordance with the laws of Abu Dhabi Emirate and the Federal laws of the UAE; and
 - (b) reported to the Bureau pursuant to the Incident Reporting Regulations 2008.

3.3 Self supply schemes

- 3.3.1 A Licensee may Reuse Recycled Water and Biosolids without a Supply Agreement on its own premises subject to the following conditions:
- (a) the Licensee must notify the Bureau of any self supply schemes;
 - (b) the Licensee must develop a Safety Plan for each self supply scheme which extends to the point-of-use and complies with Clause 5.3 of these Regulations;
 - (c) any self supply scheme must be recorded in the register defined in Clause 9.2; and
 - (d) any self supply scheme complies with Section 9.3 of these Regulations.

4.1 Supply Agreements

- 4.1.1 A Disposal Licensee must have a Supply Agreement with any Entity receiving Recycled Water or Biosolids.

4.2 Applying for a Supply Agreement

- 4.2.1 Any Entity intending to use Recycled Water or Biosolids must apply for a Supply Agreement from a Disposal Licensee.
- 4.2.2 An application for a Supply Agreement must be made on the Disposal Licensee's application form.
- 4.2.3 An Entity applying for a Supply Agreement must provide any further information reasonably requested by the Disposal Licensee to assess the application.
- 4.2.4 The format of a Supply Agreement application form must be approved by the Bureau.

4.3 Issue of a Supply Agreement

- 4.3.1 A Disposal Licensee must issue a Supply Agreement to an applicant if satisfied that:
- (a) the End-user can demonstrate the proposed Reuse activity will:
 - (i) not harm the health and safety of the general public;
 - (ii) not pollute the water, land or air; and
 - (iii) not cause a Public Nuisance; and
 - (b) the proposed use of Recycled Water or Biosolids will not:
 - (i) exceed the existing demand for Recycled Water or Biosolids; and
 - (ii) breach any terms of these Regulations.
- 4.3.2 A Disposal Licensee may request any additional information it reasonably believes necessary to produce a Supply Agreement.

4.4 Notification

- 4.4.1 A Disposal Licensee must inform the Bureau and the Entity who has applied for a Supply Agreement whether or not it has been successful within 60 days of the application being made.
- 4.4.2 A Disposal Licensee must give its reasons for refusing any application for a Supply Agreement.
- 4.4.3 A Disposal Licensee must include a draft Safety Plan and a draft Supply Agreement in its notification of a successful application.

4.5 Supply Agreement application refused

- 4.5.1 Any Entity refused a Supply Agreement by a Disposal Licensee on grounds it considers unreasonable may appeal to the Bureau under the terms set out in Part 8 of these Regulations.

4.6 Unreasonable conditions

- 4.6.1 Any Entity issued a Supply Agreement or a variation notice by a Disposal Licensee with conditions the Entity considers unreasonable, may appeal to the Bureau under the terms set out in Part 8 of these Regulations.

4.7 Supply Agreement details

- 4.7.1 The format of a Supply Agreement must be approved by the Bureau.
- 4.7.2 A Supply Agreement must:
 - (a) describe the Recycled Water or Biosolids including:
 - (i) the source of the Recycled Water or Biosolids to be supplied;
 - (ii) the Point-of-transfer;
 - (iii) the volume or mass, frequency and rate of discharge of the Recycled Water or Biosolids; and

- (iv) the nature and composition of the Recycled Water or Biosolids; and
- (b) state the terms and conditions for the supply of Recycled Water and Biosolids including but not limited to:
 - (i) any restrictions or codes of practice that may apply to the Disposal activity; and
 - (ii) the records to be kept;
 - (iii) the start and end date of the agreement; and
 - (iv) the grounds on which the agreement may be terminated or varied; and
- (c) state that the End-user shall be liable for the payment of charges and tariffs to the Disposal Licensee for the supply of Recycled Water and Biosolids, if such charges and tariffs are approved by the Bureau in accordance with the licence of the Disposal Licensee.

4.7.3 The Disposal Licensee must provide the Bureau with a copy of new or amended Supply Agreements at least 30 days before the supply of Recycled Water or Biosolids begins.

4.8 Varying a Supply Agreement

- 4.8.1 A Disposal Licensee may vary a condition of a Supply Agreement if:
- (a) there is a change in law or policies of the Government which makes it necessary to change a condition;
 - (b) the Disposal activity has significantly changed since the Supply Agreement was made; or
 - (c) a period of two years has passed since the start of the Supply Agreement.

4.9 Variation notice

- 4.9.1 A Disposal Licensee must give written notice, to all parties to a Supply Agreement and the Bureau, if it intends to vary a condition of the Supply Agreement.
- 4.9.2 A notice to vary a condition of a Supply Agreement must:
- (a) list each condition to be varied;
 - (b) state each reason why a condition will be varied;
 - (c) state the date the variation will come into force; and
 - (d) give information on the right of appeal.
- 4.9.3 A notice to vary a condition of a Supply Agreement must be given at least 30 days before the date the variation comes into force, unless the law requires action to be taken sooner.

Safety Plans

5.1 Development of Safety Plan

- 5.1.1 A Disposal Licensee must develop a Safety Plan for the supply of Recycled Water or Biosolids to each Point-of-transfer on its Disposal System.
- 5.1.2 The Safety Plan should describe the operational and management controls that will be employed by Licensees to protect public health, safeguard the environment and minimise Public Nuisance.
- 5.1.3 Any Collection or Treatment Licensee whose systems are connected to the Point-of-transfer must:
 - (a) provide any information and resources a Disposal Licensee reasonably requests to develop a Safety Plan; and
 - (b) advise the Disposal Licensee of any changes to the Sewerage or Treatment Systems which will require a change to a Safety Plan.

5.2 Review of Safety Plan

- 5.2.1 A Disposal Licensee must submit its Safety Plan to the Bureau for review at least 60 days before the supply of Recycled Water or Biosolids is due to start.
- 5.2.2 The Bureau must complete a review of a Safety Plan at least 30 days before the supply of Recycled Water and Biosolids is due to start.
- 5.2.3 The Bureau will identify and report to the Disposal Licensee any changes it believes are required to:
 - (a) protect public health;
 - (b) safeguard the environment; or
 - (c) minimise Public Nuisance.

-
- 5.2.4 Before the supply of Recycled Water or Biosolids begins the Disposal Licensee must:
- (a) adopt the recommendations made by the Bureau under Clause 5.2.3 and submit a revised Safety Plan; or
 - (b) append the Bureau's recommendations to the Safety Plan and state the reasons why they have not been adopted.

5.3 Scope of Safety Plans

- 5.3.1 The Safety Plan must define:
- (a) the Sewerage, Treatment and Disposal Systems connected to the Point-of-transfer;
 - (b) the capabilities of the Sewerage, Treatment and Disposal Systems connected to the Point-of-transfer;
 - (c) the roles and responsibilities of the Entities involved with the Sewerage, Treatment and Disposal Systems connected to the Point-of-transfer;
 - (d) the hazards associated with the treatment of Wastewater and Disposal of the Recycled Water or Biosolids that may affect human health, the environment or the availability of the Recycled Water or Biosolids at the Point-of-transfer;
 - (e) the operational and management controls and contingency plans for each hazard identified in Clause 5.3.1(d);
 - (f) the risk based monitoring programme that will make sure the requirements of these Regulations are met and that the operational and management controls identified in Clause 5.3.1(e) are effective;
 - (g) reporting and auditing requirements for the monitoring programme identified in Clause 5.3.1(f); and
 - (h) supporting programmes to improve employee awareness and involvement.

6.1 Development of a Safety Plan monitoring programme

- 6.1.1 The monitoring programme developed to meet the requirements of Clause 5.3.1(f) must:
- (a) reflect the risks associated with the supply of the Recycled Water or Biosolids at the Point-of-transfer; and
 - (b) confirm:
 - (i) the performance of the Sewerage, Treatment and Disposal Systems;
 - (ii) the effectiveness of any operational and management controls; and
 - (iii) that the quality of the Recycled Water or Biosolids conforms with the criteria in Schedules A or B at the Point-of-transfer.
- 6.1.2 The Disposal Licensee, Treatment Licensee and Collection Licensee shall be responsible for implementing the requirements of the monitoring program on their systems.
- 6.1.3 Any sampling or analysis done by a Licensee as a condition of a monitoring programme must be done at the Licensee's expense.

6.2 Data collection and reporting

- 6.2.1 The Disposal Licensee shall collate all monitoring and sampling data generated by a monitoring programme.
- 6.2.2 For each monitoring programme the Disposal Licensee must collect monitoring and sampling data measured by the Collection and Treatment Licensees at least once every three months.
- 6.2.3 The Disposal Licensee shall retain records of all sampling and monitoring data for at least ten years.
- 6.2.4 The Disposal Licensee must submit the results from a monitoring programme to the Bureau when requested.

- 6.2.5 The format of the submission shall be approved by the Bureau before it is implemented.

6.3 Auditing

- 6.3.1 The Disposal Licensee must complete an assessment, on an annual basis, of:

- (a) Licensee compliance with the monitoring programme requirements; and
- (b) the effectiveness of the monitoring programme.

- 6.3.2 The Disposal Licensee shall submit the results of the assessment carried out in accordance with Clause 6.3.1 to the Bureau.

- 6.3.3 The format of the assessment submission shall be approved by the Bureau before it is implemented.

6.4 Monitoring points

- 6.4.1 Licensees must install and maintain monitoring points which:

- (a) enable an inspector to obtain a representative sample of the Recycled Water or Biosolids at any time;
- (b) have good access and egress; and
- (c) be safe and suitable for monitoring and sampling.

6.5 Monitoring equipment

- 6.5.1 Licensees must install and maintain meters and equipment to monitor the:

- (a) volume, frequency and rate of flow of Wastewater, Recycled Water or Biosolids;
- (b) composition and nature of Wastewater, Recycled Water or Biosolids at any time; and
- (c) performance of the Collection, Treatment and Disposal Systems.

6.6 Sampling requirements

- 6.6.1 Any sample taken to fulfil the requirements of these Regulations must be handled, transported and stored in such a way as to make sure it is:
- (a) representative of the nature and composition of the Recycled Water or Biosolids;
 - (b) not contaminated at any stage in the sampling process; and
 - (c) kept under conditions necessary to prevent change to any part of the Recycled Water or Biosolids.
- 6.6.2 A sample must be analysed:
- (a) by a person competent to carry out the task;
 - (b) using analytical systems and methods capable of establishing the concentration of substances identified in the Safety Plan within acceptable limits of deviation; and
 - (c) at a laboratory that has a system of analytical quality control audited by an independent third party.

6.7 Analytical systems and methods

- 6.7.1 The Panel must provide advice to the Bureau on analytical systems and methods for detecting and measuring the concentration of the organisms and substances identified in Schedules A and B.
- 6.7.2 The Bureau may, from time-to-time, audit the analytical systems and methods used by any laboratory testing samples of Recycled Water or Biosolids.
- 6.7.3 Where the Bureau identifies deficiencies in the analytical systems and methods used by a laboratory testing Recycled Water or Biosolids it will:
- (a) issue a notice to any Licensee using that laboratory identifying the deficiencies identified; and

-
- (b) require any Licensee using that laboratory to assess, rectify and report on the impact of the laboratory deficiencies on their compliance with these Regulations.

Compliance

7.1 Assessing compliance

- 7.1.1 The Bureau shall determine whether or not Licensees are complying with these Regulations by reviewing, amongst other things:
- (a) Supply Agreements;
 - (b) Safety Plans;
 - (c) registers, audits and information submitted to it by Licensees;
 - (d) outcomes of any inspection, monitoring or sampling activities carried out by the Bureau; and
 - (e) any other information or documentation the Bureau considers to be relevant.

7.2 Improvement notices

- 7.2.1 The Bureau may issue an improvement notice to a Licensee if:
- (a) the Licensee has breached the Regulations; or
 - (b) action is required to protect public health, minimise Public Nuisance or prevent damage to the environment.
- 7.2.2 Any improvement notice must be given in writing to the Licensee and a copy sent to all Entities that are a party to the Supply Agreement.
- 7.2.3 An improvement notice must:
- (a) state:
 - (i) the condition of the Regulations that has been breached; or
 - (ii) the threat to public health and safety or the environment; or
 - (iii) the cause of Public Nuisance; and

- (b) explain how:
 - (i) the condition has been breached; or
 - (ii) the threat or cause has been identified; and
- (c) state the action the Licensee must take and when it must be taken;
- (d) give the date by which the Licensee must complete any action;
- (e) state the consequences if the Licensee does not take action in time; and
- (f) state what the Bureau may do to monitor progress with the terms of the improvement notice.

7.3 Urgent action

7.3.1 The Bureau may issue a verbal improvement notice or preliminary order pursuant to Article (107) of Law No (2) without giving prior written notice if urgent action is required to:

- (a) protect the health and safety of the general public or Licensee employees; or
- (b) prevent significant or lasting damage to the environment.

7.3.2 If the Bureau issues a verbal improvement notice because urgent action is required, then it must give written notice to the Licensee as soon as practicable following the issue of such an improvement notice.

7.4 Right of appeal

7.4.1 Any Entity, that is party to a Supply Agreement affected by an improvement notice, with conditions it believes are unreasonable, may appeal to the Bureau in accordance with the arbitration process in Part 8 of these Regulations.

7.5 Enforcement

- 7.5.1 The Bureau reserves its right, upon failure of a Licensee to comply with an improvement notice to the satisfaction of the Bureau, to issue a preliminary order pursuant to Article (107) of Law No (2).
- 7.5.2 Failure to comply with an improvement notice or these Regulations shall be contrary to Law No (2) and enforced in accordance with Law No (2).

Appeals and arbitration

8.1 Appeals

- 8.1.1 Any dispute between a Disposal Licensee and an End-user in relation to the exercise of the Disposal Licensee's powers under these Regulations may be referred to the Bureau.

8.2 Appeal form

- 8.2.1 An appeal to the Bureau made under these Regulations must be made on the Bureau's appeal form and sent with any supporting documents.

8.3 Notice of appeal

- 8.3.1 The Bureau must give written notice of any appeal it receives to any other Entity party to the appeal.
- 8.3.2 A notice of appeal must be sent within seven days of the date the appeal is received by the Bureau.
- 8.3.3 A notice of appeal must include:
- (a) a copy of the completed appeal form and any supporting documents;
 - (b) a copy of any other material lodged by the Entity making the appeal; and
 - (c) the date of receipt of the appeal by the Bureau.

8.4 Timescale for appeal

- 8.4.1 An appeal to the Bureau made under these Regulations must be received by the Bureau within 30 days of the date of notice of the decision to be appealed.
- 8.4.2 An appeal lodged outside the timescale for appeal will be dismissed by the Bureau, unless the Bureau agrees to extend the timescale to appeal in accordance with Regulation 8.5.

8.5 Extension of timescale to appeal

- 8.5.1 Any Entity making an appeal may apply to extend the timescale to appeal, provided that the Entity:
- (a) lodges its application to extend the timescale to appeal not less than five days before the expiry of the timescale to appeal;
 - (b) provides full details of its reason for seeking an extension;
 - (c) gives notice of its application to the other Entity party to the appeal at the same time it makes its application for an extension; and
 - (d) provides a signed and stamped statement that it has given a notice of its appeal to the other Entity.
- 8.5.2 The Bureau may extend the timescale to appeal and may set any conditions it sees fit.
- 8.5.3 The Bureau must notify the Entities party to an appeal of any decision to extend the timescale to appeal within seven days of making its decision.
- 8.5.4 If the time to appeal is extended, the Entity making the appeal must comply strictly with any conditions attached to the extension.

8.6 Bureau consideration

- 8.6.1 The Bureau may request from any Entity party to an appeal, any information or documents it considers reasonable and necessary in the circumstances.

8.7 Bureau decision

- 8.7.1 The Bureau must make its decision within 30 days of receiving an appeal.
- 8.7.2 The Bureau must notify each party to an appeal of its decision within seven days of making its decision.

-
- 8.7.3 The Bureau may:
- (a) make any decision it sees fit in the circumstances; and
 - (b) issue directions to any Entity party to an appeal.
- 8.7.4 Any decisions or directions issued by the Bureau are binding on the Entities party to the appeal.

8.8 Arbitration

- 8.8.1 Any decision by the Bureau referred to arbitration will be subject to the requirements of Article (130) and Schedule 2 of Law No (2).

Demand management

9.1 Measuring production

- 9.1.1 All Treatment Licensees must keep a register of their Wastewater treatment activities including details of the:
- (a) flows and loads received at each of their Treatment Systems;
 - (b) volume or mass of Recycled Water and Biosolids produced at each of their Treatment Systems; and
 - (c) quality of Recycled Water and Biosolids produced at each of their Treatment Systems.

9.2 Measuring supply

- 9.2.1 All Disposal Licensees must keep a register of all Points-of-transfer for Recycled Water and Biosolids in their authorised area. The register must include details of the:
- (a) Point-of-transfer;
 - (b) source of the Recycled Water and Biosolids supplied;
 - (c) volume or mass of Recycled Water and Biosolids supplied; and
 - (d) quality of Recycled Water and Biosolids at the Point-of-transfer.

9.3 Registers

- 9.3.1 Treatment Licensees and Disposal Licensees must submit a copy of the registers to the Bureau for the preceding calendar year on 1 April every year.
- 9.3.2 The format of the registers must be approved by the Bureau.

9.4 Meeting demand

- 9.4.1 A Disposal Licensee must allocate Recycled Water and Biosolids to End-users in accordance with the law or any policy issued by Higher Authorities.

-
- 9.4.2 Where there is no clear policy for allocating Recycled Water and Biosolids a Disposal Licensee must allocate using Priority Rights.

9.5 Efficient use

- 9.5.1 Disposal Licensees shall promote the conservation and efficient use of Recycled Water and Biosolids.
- 9.5.2 End-users shall comply with any policies and guidelines to prevent the waste and over consumption of Recycled Water and Biosolids issued by Disposal Licensees.

Education and guidance

10.1 Education and guidance

10.1.1 Disposal Licensees must develop a strategy to raise understanding of:

- (a) the risks to public health and the environment associated with the use of Recycled Water and Biosolids;
- (b) best practice for minimising risks associated with the Reuse of Recycled Water and Biosolids; and
- (c) best practice for preventing waste and over consumption of Recycled Water and Biosolids.

10.1.2 The Bureau shall approve any strategy developed by a Disposal Licensee before it is implemented.

10.2 Awareness of Recycled Water and Biosolids quality

10.2.1 A Disposal Licensee shall provide information to the End-user which defines the quality of the Recycled Water or Biosolids in relation to the proposed end-use.

11.1 Establishment of the Panel

- 11.1.1 A Recycled Water and Biosolids Review Panel is established by these Regulations.

11.2 Role of the Panel

- 11.2.1 The Recycled Water and Biosolids Review Panel will advise the Bureau on the:

- (a) quality standards for Recycled Water and Biosolids at the Point-of-transfer;
- (b) the requirements of Schedules A and B to make sure they are in line with good international practice; and
- (c) the content of education strategies for raising awareness of good practice in the Disposal of Recycled Water and Biosolids.

11.3 Quality standards

- 11.3.1 Every two years the Panel must review the quality standards for Recycled Water and Biosolids defined in Schedules A and B of the Regulations.

- 11.3.2 Following its review the Panel must make recommendations to the Bureau on any amendments or additions which should be made to Schedules A and B.

11.4 Education strategies

- 11.4.1 The Panel is responsible for advising the Bureau on the form and content of effective strategies for raising awareness of good practice in the Disposal of Recycled Water and Biosolids.

- 11.4.2 The advice must include, amongst other things, information on:

- (a) the hazards associated with the Disposal of Recycled Water and Biosolids;

-
- (b) best practice for minimising risks associated with the Reuse of Recycled Water and Biosolids; and
 - (c) best practice for preventing waste and over consumption of Recycled Water and Biosolids.

11.5 Analytical systems and methods

- 11.5.1 The Panel must review advances in analytical methods and systems for detecting and measuring the concentration of the organisms and substances identified in Schedules A and B.
- 11.5.2 From time-to-time, and if the Bureau request it, the Panel must report to the Bureau on developments in analytical systems and methods for detecting and measuring the concentration of the organisms and substances identified in Schedules A and B.

11.6 Panel members

- 11.6.1 The Panel shall include members from the following organisations:
 - (a) the Bureau;
 - (b) All Sewerage Services Licensees with a permanent licence;
 - (c) Government agencies responsible for the protection of the environment and public health;
 - (d) Entities which represent End-users; and
 - (e) Expert advisers.
- 11.6.2 The Bureau shall establish a working group of Panel members to address each of the Panel's obligations under these Regulations. Each working group shall comprise five members including a chairman nominated by the Bureau.
- 11.6.3 The Bureau shall hold a meeting of all Panel members annually to review the membership of the Panel and consider nominations for new or alternative members.

-
- 11.6.4 Any person nominated to serve on the panel must:
- (a) be qualified and competent; and
 - (b) have authority to agree and undertake any actions on behalf of the organisation they represent.

11.7 Panel rules

- 11.7.1 The Panel must set its own rules and procedures for conducting its business.
- 11.7.2 The Panel's rules and procedures must be approved by the Bureau.

SCHEDULES

Schedules

Schedule A		44
A1	Recycled Water standards	45
A2	Recycled Water use in irrigation	47
A3	Marine discharges of Recycled Water	49
A4	Land discharges of Recycled Water	52
Schedule B		54
B1	Biosolids standards	53
B2	Treatment requirements for Biosolids	55
B3	Biosolids in agricultural or landscaping	55
B4	Biosolids to landfill	55

Schedule A

Schedule A



- A1.1.1 The standards identified in the Tables A1.1(A) define the minimum quality requirements for Recycled Water at the Point-of-transfer or discharge to the marine environment.
- A1.1.2 Section A2, A3 and A4 define further requirements for Recycled Water quality in specific Disposal activities.
- A1.1.3 Analysis and sampling is to be carried out in accordance with best practice as recommended by the Panel and subject to approval by the Bureau.

Table A1.1 (A) Recycled Water Quality

Standard	Microbiological						Sanitary													
	Faecal Coliforms		Intestinal Enterococci		Helminth Ova		BOD ₅ (ATU)		Total Suspended Solids		Ammonia Nitrogen		Total Phosphorus		Turbidity		Residual Chlorine		Dissolved Oxygen	
	MAC	CFU/100ml	MAC	CFU/100ml	MAC	Number/l	MAC	mg/l	MAC	mg/l	MAC	mg/l	MAC	mg/l	MAC	NTU	Average	mg/l	Average	mg/l
P1 General reuse	100	40		40		< 1	10	10	10		-		5	5	5	0.5 to 1				≥ 1
P2 Restricted reuse	1000		200			< 1	10	20			-		10	10	10	0.5 to 1				≥ 1
P3 Marine	1000		-			0	50	50	50		2		75	75	75	1				> 3

Notes: General reuse involves frequent and uncontrolled exposure of the general public to Recycled Water and Restricted reuse involves infrequent and controlled public exposure to Recycled Water

Notes: CFU = Colony Forming Units; NTU = Nephelometric Turbidity Unit; mg/l = milligrams per litre

Notes: MAC = Maximum allowable concentration; Average – Arithmetic mean of the samples taken in any calendar month must comply with the standard

Notes: Marine and land discharges are also subject to Federal and Emirate laws detailed in Annex A3 and A4. Any system discharging to land percolation should consider P1 as a minimum acceptable standard unless a site specific assessment in conjunction with relevant authorities determines otherwise.

A2 Recycled Water use in irrigation

A2.1.1 Where Recycled Water is used for irrigation purposes the following additional requirements apply:

- (a) The Recycled Water must meet the standards set out in table A2.1 (A) derived from Annex 1 of WHO 2006 Guidelines for the safe use of wastewater in agriculture ; and
- (b) the Disposal Licensee must define the agronomic value of the Recycled Water by specifying, amongst other things the:
 - (i) typical range of total and available nitrogen, phosphorus and potassium; and
 - (ii) The salinity of the Recycled Water by providing information on the parameters identified in Table A2.1 (B).

Table A2.1(A) Irrigation criteria for trace elements

Parameter	Unit	Maximum allowable concentration
Aluminium	mg/l	5.0
Arsenic	mg/l	0.1
Beryllium	mg/l	0.1
Cadmium	mg/l	0.01
Chromium	mg/l	0.1
Cobalt	mg/l	0.05
Copper	mg/l	0.2
Fluoride	mg/l	1.0
Iron	mg/l	5.0
Lead	mg/l	5.0
Lithium	mg/l	2.5
Manganese	mg/l	0.2
Molybdenum	mg/l	0.01
Nickel	mg/l	0.2
Selenium	mg/l	0.02
Vanadium	mg/l	0.1
Zinc	mg/l	2.0

Table A2.1(B) Salinity parameters

Parameter	Unit
Electrical conductivity	(dS/m @ 25°C)
Total dissolved solids (TDS)	mg/l
Sodium adsorption ratio (SAR)	meq/l
Sodium (Na ⁺)	meq/l
Chloride (Cl ⁻)	meq/l
Boron	mg/l
Bicarbonate (HCO ₃ ⁻)	mg/l

A3 Marine discharges of Recycled Water

A3.1 Legal requirements

A3.1.1 Any Recycled Water that is discharged to the marine environment must meet the requirements of the:

- (a) UAE Federal Law No (24) of 1999 for the Protection and Development of the Environment and its executive order for the protection of the marine environment; and
- (b) the Abu Dhabi EHSMS Regulatory Framework (including Standards and Guideline Values developed under Decree of the Crown Prince, Chairman of the Executive Council No. (42) of 2009 Concerning The Environment, Health and Safety Management System (EHSMS) in Abu Dhabi Emirate.

A3.2 Quality requirements

A3.2.1 Any Recycled Water discharged to the marine environment must meet the standards in Tables A3.2(A) and A3.2(B) taken from UAE Federal Law No (24) of 1999 and its executive order for the protection of the marine environment.

Table A3.2(A) Prohibited substances at point-of-discharge into the sea

Type	Substance
Organo-phosphorus pesticides	Dimethoate
	Malathion
Organo-chlorine pesticides	Aldrin
	Dieldrin
	Dichlorodiphenyltrichloroethane (DDT)
	Chlordane
Polychlorinated Biphenyls (PCBs)	Endrin
	Aroclor
	Tetrachlorobiphenyl

Table A3.2(B) Standards for wastewater at point-of-discharge into the sea

Parameter	Unit	Maximum Allowable concentration
Total suspended solids	mg/l	50
Total Dissolved Solids	mg/l	1500
pH	Unit	6 to 9
Floating particles	mg/m ²	None
Temperature	°C	5 > ambient
Turbidity	NTU	75
Ammonia as N	mg/l	2
Nitrate as N	mg/l	40
Chlorine Residual	mg/l	1
Cyanide	mg/l	0.05
Dissolved Oxygen	mg/l	> 3
Fluoride	mg/l	20
Sulphide	mg/l	0.1
BOD ₅	mg/l	50
Total Kjeldahl Nitrogen as N	mg/l	10
Total phosphorus as P	mg/l	2
Chemical Oxygen demand	mg/l	100
Aluminium	mg/l	20
Antimony	mg/l	0.1
Arsenic	mg/l	0.05
Barium	mg/l	2
Beryllium	mg/l	0.05
Cadmium	mg/l	0.05
Chromium total	mg/l	0.2
Chromium VI	mg/l	0.15
Cobalt	mg/l	0.5
Copper	mg/l	0.5
Iron	mg/l	2
Lead	mg/l	0.1
Manganese	mg/l	0.2
Mercury	mg/l	0.001
Nickel	mg/l	0.1
Selenium	mg/l	0.02

Parameter	Unit	Maximum Allowable concentration
Silver	mg/l	0.005
Zinc	mg/l	0.5
Halogenated Hydrocarbons & Pesticides	mg/l	None
Hydrocarbons	mg/l	15
Oil and grease	mg/l	10
Solvents	mg/l	None
Total organic Carbon TOC	mg/l	75
Total Coliforms	MPN/ 100ml	1000
Faecal Coliforms	CFU /100ml	1000
Egg Parasites	Number	None
Warm Parasites	Number	None

A4 Land discharges of Recycled Water

A4.1 Legal requirements

- A4.1.1 Any Recycled Water that is discharged to land must meet the requirements of the:
- (a) UAE Federal Law No (24) of 1999 for the Protection and Development of the Environment; and
 - (b) the Abu Dhabi EHSMS Regulatory Framework (including Standards and Guideline Values developed under Decree of the Crown Prince, Chairman of the Executive Council No. (42) of 2009 Concerning The Environment, Health and Safety Management System (EHSMS) in Abu Dhabi Emirate.

A4.2 Land Disposal

- A4.2.1 The Disposal of Recycled Water to any system that may result in the release of Recycled Water to a groundwater system must ensure that existing and potential beneficial uses of the groundwater are protected.
- A4.2.2 The quality of Recycled Water discharged to land shall be determined in accordance with the Emirate's Environmental Health and Safety Management System code of practice for water quality and by the EAD or EHSMS sector regulatory authority on a case by case basis.

Schedule B

Schedule B

B1 Biosolids standards

- B1.1.1 The standards in Tables B1.1(A) define the minimum quality requirements for Biosolids at the Point-of-transfer.
- B1.1.2 Section B2 defines the minimum performance requirements for systems used to treat Biosolids.
- B1.1.3 Sections B3 and B4 define the requirements for Biosolids quality in specific disposal activities.
- B1.1.4 Analysis and sampling to be carried out in accordance with best practice as recommended by the Panel and subject to approval by the Bureau.

Table B1.1 (A) Biosolids Quality

	Microbiological		Sanitary									
	E. coli	Salmonella sp. Helminth Ova	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Zinc
B1	CFU/g dm < 10000	CFU/ 2g dm < 1	mg/kg MAC	mg/kg MAC	mg/kg MAC	mg/kg MAC	mg/kg MAC	mg/kg MAC	mg/kg MAC	mg/kg MAC	mg/kg MAC	mg/kg MAC
B2	< 1000000	Not applicable	75	20	1000	1000	300	1	20	60	3	300
		< 10					750	10	75	300	50	2500

Notes: Unrestricted use involves frequent and uncontrolled exposure of the general public to Biosolids.
 Controlled use involves infrequent and controlled public exposure to Biosolids.
 Notes: CFU = Colony Forming Units; mg/kg = milligrams per kilogram dry matter
 Notes: MAC = Maximum allowable concentration.

B2 Treatment requirements for Biosolids

- B2.1.1 Treatment Systems used to produce Biosolids must achieve one of the criteria defined in Table B2.1 (A).
- B2.1.2 Analysis and sampling is to be carried out in accordance with best practice as recommended by the Panel and approved by the Bureau.

Table B2.1(A) Biosolids stabilisation standards

Option	Measure	Requirement
Treatment System to reduce volatile solids	% VS Reduction across process	> 38
Treatment System to dry raw sludge	% dm in final product	> 95
Treatment System to dry stabilised sludge	% dm in final product	>75
Treatment System to maintain pH	pH in final product	>11.5 for 24hours

Notes: The arithmetic mean of the samples taken in any calendar month must comply with the standard

B3 Biosolids in agricultural or landscaping

- B3.1.1 Where Biosolids are used for agricultural or landscaping purposes the Disposal Licensee must define the agronomic value by specifying, amongst other things the typical range of:
- total and available nitrogen, phosphorus and potassium; and
 - dry solids and volatile solids.

B4 Biosolids to landfill

- B4.1.1 The disposal of Biosolids in landfill is to subject to control by the Center of Waste Management and Environment Agency Abu Dhabi.
- B4.1.2 The quality of Biosolids discharged to landfill shall be determined by the Center of Waste Management and the Environment Agency Abu Dhabi.

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

Recycled Water and Biosolids Regulations 2010