



2016 Wastewater Regulations Quality Standards Review

Consultation response overview

INTRODUCTION

The Bureau held a consultation with the Wastewater Regulation Review Panel Members and other key stakeholders in Abu Dhabi to gather the organisations' views on possible amendments or additions to the quality standards in the Trade Effluent Control (TEC) Regulations and Recycled Water and Biosolids (RW&B) Regulations 2010 between 2 November and 31 December 2016.

In addition, the Bureau requested views on the RW&B Regulations with reference to the subject of the planned establishment of the new Non-Drinking Water Divisions at Abu Dhabi Distribution Company (ADDC) and Al Ain Distribution Company (AADC).

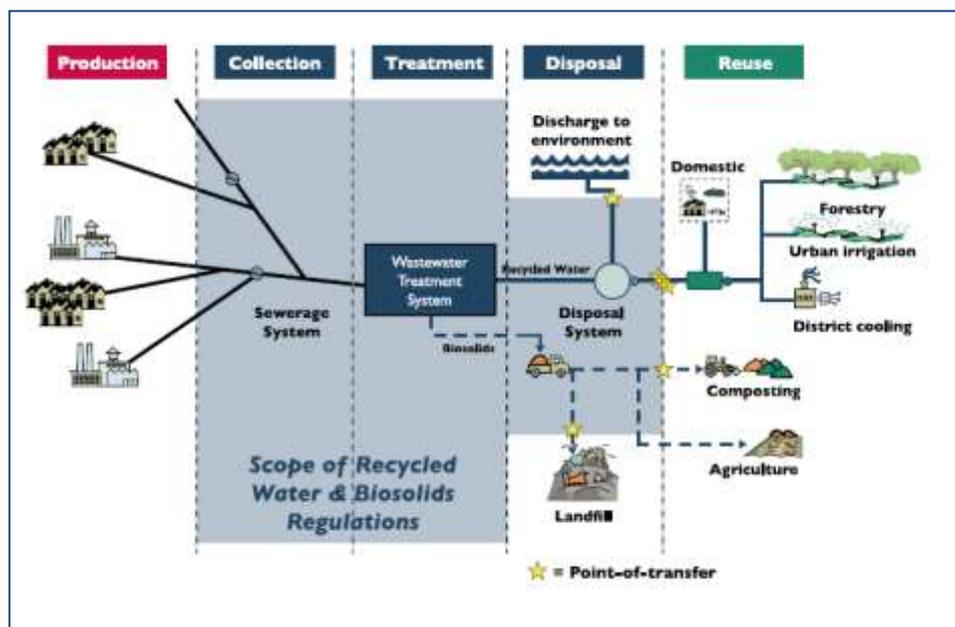
The standards in the Regulations define the microbiological, physical and chemical requirements for recycled water, biosolids and trade effluent. The Regulations mandate a review of the standards in the Regulations at least once every two years by the Panel.

CONSULTATION FEEDBACK

The Bureau received written feedback from 6 organisations and thanks those who responded for their time, detailed comments and recommendations.

Scope of the Consultation: Point-of-Transfer, not Point-of-Use

The RW&B Regulations define the actions Sewerage Services Licensees must take to assure the delivery of Recycled Water and Biosolids to the Point-of-transfer. The main requirements of the Regulations are implemented by Disposal Licensees and enforced by the Bureau. The regulatory activities extend up to the Point-of-Transfer (PoT) as depicted in the illustration below.



The current standards identified in the RW&B Regulations define the minimum quality requirements at the (PoT) from a Disposal Licensee to the End-user. A number of the comments received from the stakeholders contained recommendations for recycled water quality parameters to the point of use. However, the reuse or further treatment of Recycled Water or Biosolids beyond the PoT is controlled by other regulators. Any Entity who receives Recycled Water or Biosolids from a Disposal Licensee must seek advice regarding the regulatory requirements for their activity from either:

- (a) Environment Agency Abu Dhabi (EAD);
- (b) Center of Waste Management Abu Dhabi (CWM); or
- (c) the appropriate Sector Regulatory Authority (SRA)

However, the Bureau does acknowledge the value of the feedback provided and is willing to work with its partner agencies and relevant stakeholders to formulate a suitable monitoring regime for the environment to the point of use where recycled water and biosolids are used.

Standards Related Recommendations

The Bureau received a number of comments and recommendation related specifically to the standards outlined in the schedules of the TEC Regulations and RW&B Regulations. The Bureau's review and analysis of the issues is presented below:

Residual Chlorine

Proposal

Chlorination is used in the wastewater treatment process to reduce the possibility of microbiological pollutants being present in recycled water. The residual chlorine concentration noted in Table A1.1(A) of the RW&B Regulations is 0.5 to 1.0 mg/l at the (PoT). However due to the significant disposal network lengths, which vary from catchment to catchment, there may be a reduction in residual chlorine levels prior to reaching the PoT.

Bureau Preliminary Response

The Treatment Licensees currently address this potential deterioration within the network by increasing the amount of chlorine added to the disinfection stage of the treatment process. Given the variation in length of the disposal systems, the Bureau recognises that greater than 1.0 mg/l residual chlorine may be required in some catchments.

Therefore, by way of clarification, although the ideal concentration shall be between 0.5 to 1.0 mg/l, the Licensee may increase to above 1.0 mg/l where the Licensee determines that it is necessary for the purpose of reducing bacteriological contamination.

Total Phosphorus limits

Proposal

The Maximum Allowable Concentration (MAC) in Table A1.1(A) of the RW&B Regulations for total phosphorus at point of discharge to the sea is 2 mg/l. A study was referenced by one of the stakeholders to note that this MAC may not be consistently met.

Bureau Preliminary Response

Discharges to the marine environment are regulated by the Environment Agency Abu Dhabi (EAD). Any change in the standards can be reflected in the RW&B Regulations accordingly. However, the Bureau notes that in order to meet the MAC for total phosphorus on a consistent basis, the Treatment Licensees would require upgrading the treatment plants at significant expense to incorporate nutrient removal into the process.

As the majority of the recycled water produced is reused for irrigation purposes, where nutrient removal would be disadvantageous, coupled with the Emirate-wide drive to reuse 100 % of the recycled water, the Bureau believes that upgrading the treatment plants to add nutrient removal is unnecessary. The Bureau will work with the relevant stakeholders to drive towards the 100 % reuse target whilst minimising the inconsistent discharges in the interim.

PH limit increase to 8.5

Proposal

The current limits for pH specified in Table A1.1(A) of the RW&B Regulations are between 6 to 8 for General and Restricted reuse (P1 and P2). It was proposed to change the upper limit for pH to be 8.5.

Bureau Preliminary Response

The range of 6 to 8 for pH originally reflected the recommended range derived from the United States Environmental Protection Agency (USEPA)'s Guidelines for Water Reuse. However, the Compendium of Standards for wastewater reuse in the Eastern Mediterranean Region was referenced to illustrate a number of jurisdictions locally that permit upper limit pH levels of 8.5 and 9.

Additionally, the Bureau notes the commonly referenced range for pH of 6.5 to 8.4 by the Food and Agriculture Organisation (FAO). The Bureau accepts that the risk of adverse impact by increasing the upper pH limit to 8.5 is minimal and agrees with the proposal.

Helminth Ova

Proposal

The current limit for Helminth Ova is set to be <1 number/l in Table A1.1(A) of the RW&B Regulations. It was suggested to clarify the MAC to 0 number/l, i.e. a presence/absence test.

Bureau Preliminary Response

Helminth ova are one of the microbiological parameters that can be used to ensure recycled water quality despite it not being commonly measured in jurisdictions internationally. The main drivers for its continued inclusion here are its' higher prevalence in developing countries and because it is considered the most environmentally resistant pathogen.

Due to this, and the fact that their eggs can survive for several years, the Bureau agrees with the use of a simple presence/absence test and will revise the MAC to 0 number/l.

Intestinal Enterococci discharge to the marine environment

Proposal

Intestinal Enterococci limits are specified for General and Restricted reuse in Table A1.1(A) of the RW&B Regulations. It was proposed to introduce Intestinal Enterococci limits for discharge to the marine environment.

Bureau Preliminary Response

The Bureau does not set standards for recycled water discharged to the marine environment. However, Licensees that discharge to the marine environment must meet the standards taken from UAE Federal Law No. 24, 1999. The Bureau notes the ongoing work by the EAD regarding ambient marine water quality standards. If these standards are updated, the Bureau will reflect the changes in the Regulations accordingly.

Addition of chemical element symbols

Proposal

It was suggested to add chemical element symbols, by way of clarity, to the tables in the schedules of the Regulations.

Bureau Preliminary Response

The Bureau has no objection with this, and will take note for updating in the revision to the Regulations.

Introducing Mercury & Silver limits

Proposal

It was suggested to add a Mercury MAC of 0.001 mg/L and a Silver MAC of 0.5 mg/L in Table A2.1(A) of the RW&B Regulations.

Bureau Preliminary Response

Mercury and silver were never originally considered for inclusion as the trace elements parameters were derived from the USEPA's Guidelines for Water Reuse. Although Saudi wastewater reuse standards for agricultural irrigation were referenced, one of the Bureau's initial concerns is that the mercury limit in particular is close to the limit of detection using standard testing procedures.

However, the Bureau notes the proposal, and will discuss further with the relevant stakeholders prior to incorporating in the revision of the RW&B Regulations.

Biosolids dry solids reduction from 95% to 90%

Proposal

Table B2.1(A) 'Biosolids stabilisation standards' in the RW&B Regulations requires greater than 95 % dry solids matter for reuse of raw sludge. It was proposed for the dry solids percentage to be reduced to 90 %, enabling small remote plants that do not have mechanical equipment or stabilisation process to comply.



Bureau Preliminary Response

This is partially linked to the helminth ova issue outlined above. Due to helminth ova's nature which affects its behaviour in the wastewater treatment process, it is very difficult to inactivate helminth ova eggs unless the temperature is raised above 40 deg. C or the moisture content is reduced to less than 5 %.

Therefore, the Bureau does not agree with the proposal to reduce the dry solids percentage; consideration can be given to removing the raw sludge requirement entirely (affecting a relatively small percentage of the production). This may be discussed further with the relevant stakeholders prior to revising Table B2.1(A) of the RW&B Regulations.

This consultation response overview will be published on the Bureau's website and the findings incorporated in the upcoming revision to the Regulations.

FURTHER ENQUIRIES

If you have any enquiries or concerns about the consultation or you feel your specific comment has not been addressed please contact:

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