



FAIR TRADING COMMISSION

DECISION

Standards of Service For the Barbados Water Authority (BWA) 2023 - 2025

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SECTION 1 SUMMARY

In May, 2021, the Fair Trading Commission (the “Commission”) commenced a review of the Standards of Service for the Barbados Water Authority (the “BWA”) for the period 2018 – 2020 (as outlined in a Decision on the Standards of Service for BWA issued by the Commission on May 31, 2017).

Standards of Service are an important mechanism for ensuring that the utilities which the Commission regulates, including BWA (the entity with responsibility for the supply of potable water and the treatment and disposal of wastewater), provide safe, efficient and reliable service to its customers. Intermittent review of the Standards of Service (SOS) by the Commission is essential in determining the appropriateness of such standards, and where applicable, making consequent amendments to same, to facilitate improved performance.

The Commission initiated its review of the Standards of Service for BWA for the 2018-2020 period by issuing a Consultation Paper¹ which outlined the Commission’s proposed changes to the BWA’s Standards of Service and invited service providers, representatives of consumer interest groups, the general public and other parties with an interest in the matter to submit written responses to the said proposals. The purpose of this part of this process was to ensure transparency in the Commission’s review. Submissions to the Consultation Paper were received from the BWA and AnchorBridge Environmental Inc.

The Commission, having reviewed and analysed the submissions received from the BWA and AnchorBridge Environmental Inc., proposed further revisions to the Standards of Service in a document published on May 22, 2022 and titled “Proposed Standards of Service for the Barbados Water Authority”². On that date, the Commission also issued a notice for a written hearing for the purpose of reviewing the Standards of Service for the BWA. Interested parties were invited to participate in the written hearing by submitting letters of intervention. Letters of intervention were received from Mrs. Judith Ann Aycock-Harding and the BWA.

¹ Consultation Paper – Determination & Applicability of Standards of Service for the Barbados Water Authority, May 20, 2021.

² Proposed Standard of Service for the Barbados Water Authority (BWA), May 20, 2022.

Following the Commission's consideration of the submissions laid out in the respective letters of intervention, the Commission has hereby determined that the Standards of Service for BWA be revised as follows:

Guaranteed Standards of Service

- Target times will be expressed as 'working days' solely, as opposed to both 'working days' and 'calendar days' in some instances;
- The Guaranteed Standards for Installation of Service (GWS 1) will refer to Installation of Service in Zone 1 or Zone A;
- The time to acknowledge complaints under Guaranteed Standard Response to Complaints (GWS 3) has been adjusted from seven (7) calendar days to five (5) working days;
- A new section has been added to Meter Installation or Meter Repositioning (GWS 5(b)) with a target time of fifteen (15) working days to reposition a meter on request; and
- A new Guaranteed Standard has been added, Application for Reconnection of a service that was disconnected from the main (GWS 8). There is a target time of seven (7) working days for residential customers and five (5) working days for commercial customers to effect the re-connection.

Overall Standards of Service

- The testing requirements under Overall Standard Potable Water Quality (OWS 10) have been modified. The BWA is required to conduct a wide screen analysis bi-annually, metals and pesticides are to be tested quarterly, and primary pollutants tested monthly;
- The percentage compliance rate for Overall Standard Repair of Ruptured Pipes (OWS 11) is 90% to be repaired in five (5) working days; and
- A new Overall Standard for Billing Accuracy (OWS 13), will measure the accuracy of the bills issued by the BWA. OSW 13 target demands that 90% of bills issued by the BWA must be accurate.

General Administration

- BWA will be required to institute a standard complaints procedure, inclusive of an official complaint form, to be reviewed and approved by the Commission;
- BWA must implement the following measures:
 - 1) Publish the Standards of Service Tables prominently on its website;
 - 2) Make available to its customers, by post or electronically within two (2) months of the implementation, the Table of the Guaranteed Standards of Service as set out in this Decision;
 - 3) Include a weblink to the Table of Guaranteed Standards on customers' utility bills; and
 - 4) Inform customers who make complaints of the means by which compensation may be sought.

These Standards of Service, applicable to the BWA, will be effective for a period of three (3) years. The Commission reserves its right to:

- (i) review these Standards of Service before the end of the aforementioned period; and
- (ii) extend its Decision for two (2) additional years, if deemed necessary. Thereafter, the Decision will be subject to review by the Commission, at which time consequential amendments may be made.

SECTION 2 INTRODUCTION

2.0 Background

The Utilities Regulation Act, CAP.282 of the Laws of Barbados (as amended) (the “URA”) places a duty on the Commission to determine, monitor and review the standards of services supplied by regulated utility service providers. In discharging this responsibility, the Commission consulted with the BWA, representatives of consumer interest groups and other interested parties as mandated by Section 4(4) of the Fair Trading Commission Act, CAP. 326B of the Laws of Barbados (the “FTCA”). Additionally, the Commission held a written hearing and two (2) interested parties participated.

The Standards of Service is a quality of service (QoS) framework. The purpose of such a framework is:

- To ensure that a minimum quality of service is maintained;
- To incentivize improvements in the quality of service;
- To monitor service quality; and
- Generally, protect the interests of consumers.

There are two (2) Standards of Service categories: Guaranteed Standards of Service (GWS), and Overall Standards of Service (OWS). Guaranteed Standards of Service require compensation in the form of a credit to each individual customer submitting a claim, when affected by the BWA’s failure to meet the defined target for the relevant Standard. Overall Standards are designed to monitor the overall performance of BWA. There is no compensation to customers for the BWA’s failure to meet Overall Standards.

These BWA Standards of Service, as outlined herein, shall become effective from January 1, 2023 for a period of three (3) years. Note however, that the Commission reserves the right to (i) review these Standards before the end of this period, and (ii) extend its Decision for two additional years (up to 2027), if deemed necessary. Thereafter, the Decision will be subject to review by the Commission, at which time amendments may be made.

SECTION 3 LEGISLATIVE FRAMEWORK

The commission is empowered under the FTCA and the URA to determine, monitor and review the Standards of Service applicable to regulated utilities. The role of the Standards of Service framework is to ensure, *inter alia*, operational consistency and outline the minimum standards of quality as it relates to the responsiveness, customer service and reliability required of BWA.

3.1 The Commission's Authority to Establish Standards of Service

Section 4(3) of the FTCA and Sections 3(1) and 4 of the URA set out the Commission's authority to determine the Standards of Service for a utility service and the considerations that must be given when determining the same. Rule 63(2) of the Utility Regulation Procedural Rules (the "URPR") details the issues that may be included in the development of these Standards of Service. Together, these legislative provisions provide the over-arching framework necessary for the development and establishment of the Standards of Service for a regulated sector.

Section 4(3) of the FTCA states *inter alia*:

"The Commission shall, in the performance of its functions and in pursuance of the objectives set out in subsections (1) and (2),

(a) ...

(b) ...

(c) ...

(d) determine the standards of service applicable to service providers and independent power producers;

(e) monitor the standards of service supplied by service providers and independent power producers to ensure compliance;

(f) carry out periodic reviews of the rates and principles for setting rates and standards of service of service providers and renewable energy producers..."

Section 3(1) of the URA states *inter alia*:

"The functions of the Commission under this Act are, in relation to service providers, to

(a) ...

- (b) ...
- (c) ...
- (d) *determine the standards of service applicable;*
- (e) *monitor the standards of service supplied to ensure compliance; and*
- (f) *carry out periodic reviews of the rates and principles for setting rates of standards of service."*

Additionally, Section 4 of the URA outlines the items that the Commission must take into account when determining standards of service, and states as follows:

"In determining standards of service, the Commission shall have regard to

- (a) *the rates being charged by the service provider for supplying a utility service;*
- (b) *ensuring that consumers are provided with universal access to the services supplied by the service provider;*
- (c) *the national environmental policy; and*
- (d) *such other matters as the Commission may consider appropriate."*

Rule 63(2) of the URPR details the issues that may be included in the development of standards of service. Rule 63(2) of the URPR states:

"Service standards may include issues such as

- (a) *universality of service;*
- (b) *the provision of new services;*
- (c) *the extension of services to new customers;*
- (d) *the maximum response time permitted for responding to customer complaints and queries; and*
- (e) *standards related to service quality which are specific to each sector."*

3.2 Requirement to Consult

When determining the standards of service for a utility service, the Commission is required to consult with interested parties in accordance with Section 4(4) of the FTCA, which states:

"The Commission shall, in performing its functions under subsection (3) (a), (b), (d) (f) and (g) consult with service providers, renewable energy producers, representatives of consumer interest groups and other parties that have an interest in the matter before it."

As previously mentioned herein, the Commission has already carried out its consultation on the Proposed Standards of Service for BWA.

3.3 Requirement to have hearings

The Commission is empowered to conduct periodic reviews of the standards of service, by way of a hearing. Section 15 (4) of the URA states as follows:

“In carrying out a review, the Commission shall hold a hearing in accordance with section 33 of the Fair Trading Commission Act.”

Section 33 of the FTCA states that hearings of the Commission shall be public, unless the circumstances warrant, or the Commission deems it appropriate to conduct a hearing in private.

Hearings may either be conducted orally or by way of a written hearing. In accordance with Rule 37(2) of the URPR, where the Commission holds a written hearing, it may dispose of the proceeding on the basis of the written documentation filed by the parties.

In any hearing to review the standards of service, interested persons have the opportunity to participate as intervenors. An intervenor in a hearing may participate by, *inter alia*, submitting evidence, arguments and interrogatories. Rule 64 of the URPR outlines the process by which interested persons may apply to the Commission for intervenor status in a hearing.

3.4 Non-compliance with Standards of Service

Once the Commission has determined the Standards of Service applicable to a utility, those standards are binding and must be strictly adhered to by the utility. Failure to adhere to or comply with standards of service may render a utility service liable to:

- a. compensate affected persons, pursuant to section 21 of the URA; and/or
- b. pay a penalty imposed by way of an order of the Commission, pursuant to section 38 of the URA.

Failure or refusal to obey an order made by the Commission may result in further fines, as section 31(1) of the URA provides that:

“Every service provider which fails or refuses to obey an order of the Commission made under this Act is guilty of an offence and is liable on summary conviction to a fine of \$100,000 and, in the case of a continuing offence, to a further fine of \$10,000 for each day or part thereof during which the offence continues.”

The potential imposition of these measures (fines and penalties) is designed to, *inter alia*, incentivize utility services to comply with the Standards of Service, and thus maintain a high quality of service overall.

Consumer Compensation

As it relates to compensation of consumers, Section 21 of the URA states that:

“Where a service provider fails to meet prescribed standards of service, the service provider shall make to any person who is affected by the failure such compensation as may be determined by the Commission.”

Section 38 (c) (ii) of the URA then empowers the Commission to prescribe the compensatory amounts owed to the persons referred to in Section 21 above. Section 38 of the URA states as follows:

“The Commission may make

(a) rules;

(b) regulations; and

(c) orders with respect to

(i) imposing penalties for non-compliance with prescribed standards of service;
and

(ii) prescribing amounts to be paid to the person referred to in section 21 for failure to provide a utility service in accordance with the standards of service set by the Commission.”

The Commission has undertaken the task of prescribing such amounts in this Decision, specifically as it relates to the Guaranteed Standards of Service applicable to BWA.

Penalties for non-compliance

On the other hand, with respect to the Commission’s power to impose penalties against a utility service for non-compliance with Standards of Service, Section 38 of the URA states:

“The Commission may make

(d) rules;

- (e) regulations; and
- (f) orders with respect to
 - (i) imposing penalties for non-compliance with prescribed standards of service; and
 - (ii) prescribing amounts to be paid to the person referred to in section 21 for failure to provide a utility service in accordance with the standards of service set by the Commission."

Such a measure is punitive in nature and is therefore different to a compensatory payment owed to an affected person. Typically, penalties applied by the Commission are also intended to perform a deterrent function, affording an appropriate level of protection to consumers, while also penalising the regulated entity for wrongdoing, if deemed necessary.

3.5 Specific Exemptions

The Commission recognises that there will be instances where a Standard of Service will not be considered to be in breach, due to force majeure circumstances (unforeseeable/unavoidable circumstances preventing the performance of obligations) or certain conditions which exempt the BWA from compliance with a particular standard. Such an exemption is stipulated in the Barbados Water Authority (Water Services) Regulations, 1982 CAP. 274A of the Laws of Barbados (BWA Regulations of 1982) at Regulation 12.

Regulation 12 of the BWA Regulations of 1982 states:

- "(1) Where*
- (a) there is a deficiency in the source of supply owing to a drought, or any contingency affecting any supply works or machinery, or any interruption caused by repairs, accident or other cause; or*
 - (b) the Authority or its General Manager considers it expedient to interrupt the supply of water, the Authority may, without notice, reduce or temporarily discontinue the supply of water to all or any particular area.*
- (2) Paragraph 1 does not*
- (a) impose any liability on the Authority by reason of the reduction or temporary discontinuance of the supply of water,*
 - (b) affect the liability of an occupier to pay all the proper rates, charges or fees."*

3.6 Consultation and Hearing Process

Stakeholders were invited to comment on BWA's Standards of Service Consultation Paper during the consultation period May 20, 2021 to June 17, 2021. BWA and AnchorBridge Environmental Inc. submitted comments on the consultation.

In furtherance of the process to review and issue revised standards, the Commission held a written hearing. Persons were invited to submit letters of intervention by May 31st, 2022. Parties granted intervenor status were given the opportunity to submit their views, proposals or comments by way of written submissions to the Commission on or before Thursday June 16, 2022. Mrs. Judith Ann Aycock-Harding participated in the written hearing through her application for intervenor status. The BWA also participated in the process by responding to Mrs. Aycock-Harding's intervention and making submissions on its' own behalf, as to current challenges that would impact on its ability to attain the standards. The Commission wishes to thank Mrs. Aycock-Harding and the BWA for participating in the hearing process.

These amended standards will be applicable from January 1, 2023, until such time as a new Standards of Service Decision is issued.

This Decision is intended to:

- I. Clearly outline the Standards of Service framework;
- II. Provide a rationale and motivation for amendments or retention of standards based on the Commission's 2018 - 2020 Standards of Service Decision; and
- III. Clearly define the intended interpretation of each standard, highlighting any applicable exemptions;

The amendments and retention of standards by the Commission in this Decision are based on the following:

- 1) The Commission's analysis of BWA's Guaranteed and Overall standards performance, within the 2018 - 2020 period;
- 2) The responses of the BWA to the Commission's May 20, 2021 Standards of Service Consultation Paper;

- 3) The Commission's analysis of sectoral issues and challenges;
- 4) Regional and global Standards of Service; and
- 5) The determination coming out of the Consultation and the Hearing;

SECTION 4 WATER SECTOR

The BWA remains the sole entity with responsibility for the supply of potable water and sewerage services and therefore continues to operate in a monopolistic environment. High infrastructural and operational costs in the process of converting ground water to potable water and the storage and distribution of the same, are deterrents and barriers to entry. Customers therefore have no alternatives in obtaining this precious resource and are reliant on the sole supplier, who, in the absence of competition, has little market-driven incentive to continually provide an acceptable quality of service.

Consequently, in the absence of competition, the Commission must continue to perform the role of proxy. Given that the ramifications for deficient standards in water or wastewater can be significant and have immediate negative economic, health and environmental consequences. The Commission must therefore ensure that the water quality in the distribution system is consistently at an acceptable level.

The Commission, as regulator, has a responsibility to ensure that there is operational accountability and that customers are afforded acceptable standards. The Standards of Service regime should motivate the utility to provide a higher quality of service that redounds to the benefit of the customer.

SECTION 5 THE DETERMINATION

5.0 Policy Decision

The Commission received two (2) responses to its Consultation Paper and two (2) written submissions during the Hearing. The Commission also analysed data from BWA's Standards of Service reports over the period 2018 to 2020 and considered complaints and queries made by its customers. After careful consideration, the Commission has determined as follows:

- The Guaranteed and Overall Standards of Service, shall remain in place for the foreseeable future.
- Amendments to the Guaranteed and Overall Standards of Service are appropriate.
- BWA shall institute a formal complaints procedure, inclusive of an official complaint form, to be reviewed by the Commission.
- BWA must implement the following measures:
 - a) Publish the Standards of Service Tables prominently on its website;
 - b) Make available to its customers, by post or electronically within two (2) months of the implementation of this Decision, the Table of the Guaranteed Standards of Service as set out in this Decision;
 - c) Include the weblink to the Table of Guaranteed Standards on customers' utility bills;
 - d) On a quarterly basis, publicize in at least two (2) forms of local media, the Guaranteed Standards of Service; and
 - e) Inform customers who make complaints of the means by which compensation may be sought.
- BWA shall continue to be required to submit the value of eligible and actual compensation due for breaches of each Guaranteed Standard of Service.
- Unless amended in this Decision, the other determinations made in the 2018-2020 Standard of Service Decision remain.

5.1 Guaranteed Standards of Service for BWA

The Guaranteed Standards of Service are first presented in summarised form in **Table 1**, followed by a more detailed explanation of definitions and applicable exemptions.

The term ‘compensation’ herein refers to a credit to the customer’s account.

Table 1 - Guaranteed Standards of Service for BWA

STANDARD	SERVICE CATEGORY	TARGET	COMPENSATION
GWS 1 (Amended)	Installation of Service 1a. This refers to the time it should take between application, payment for service, and the installation for a standard connection in a Zone other than a Zone 1 (Zone A or Zone B ³) area. (After submission of an accurately completed application and the customer is in close proximity to the BWA’s infrastructure)	Residential (R) ⁵ - Ten (10) working days Commercial (C) ⁶ - Eight (8) working days	Refund of the standard domestic thirty (30) day minimum charge. (R) Refund equivalent to double the standard domestic thirty (30) day minimum charge. (C)
	1b. This refers to the time taken to complete an investigation on receipt of an application for service, in a Zone 1 (Zone A or Zone B) area. (After submission of an accurately completed application is in close proximity to the BWA’s infrastructure⁴)	Residential (R) - Ten (10) working days	

³ The new Zonal regulations have not yet been settled. However, once the Zones have been finalized, the new Biological Control Zone will be applicable.

⁴ In instances where the customer must seek approval from the Town and Country Planning Office, the time allocated for the BWA to complete the job does not commence until the approval has been granted.

⁵ Residential customers refer to persons that indicate they are applying for a domestic service on their application for water. (R)

⁶ Commercial customers refer to persons that indicate they are applying for a commercial service on their application for water. (C)

STANDARD	SERVICE CATEGORY	TARGET	COMPENSATION
	<p>1c. Installation time after the completion of the investigation and approval in Zone 1 (Zone A or Zone B) area.</p> <p>(Zones are as defined by the BWA)</p>	<p>Residential (R) - Ten (10) working days</p>	
<p>GWS 2</p>	<p>Issuance of First Bill</p> <p>This refers to the time elapsing between the installation of water service and the issuance of the first water bill.</p> <p>(Interim bill to be issued if a bill with a reading cannot be generated)</p>	<p>No more than twenty (20) working days after installation of service.</p>	<p>\$15 (R) \$30 (C)</p>
<p>GWS 3 Amended</p>	<p>Response to Complaints</p> <p>This refers to the timeframe in which the BWA must acknowledge a customer's complaint about billing or other Standards of Service issues.</p>	<p>Acknowledgement provided within five (5) working days of receipt of written or emailed complaint.</p> <p>(Complaints made via telephone or walk-in will be deemed to have been acknowledged at the time the complaint was made.)</p> <p>Investigation of complaint and findings provided within fifteen (15) working days of receipt of complaint. (Inclusive of acknowledgement time)</p>	<p>\$15 (R) \$30 (C)</p> <p>\$15 (R) \$30 (C)</p>

STANDARD	SERVICE CATEGORY	TARGET	COMPENSATION
<p>GWS 4</p>	<p>Wrongful Disconnections</p> <p>This refers to the loss of service where the customer has been disconnected in error.</p> <p>(This does not apply where bills have been correctly stamped “due for disconnection”)</p>	<p>Reconnected within ten (10) hours after notification of the error.</p>	<p>\$50 (R) \$100 (C)</p>
<p>GWS 5 Amended</p>	<p>Meter Installation or Meter Repositioning (Existing Service)</p> <p>5a) This refers to the time frame in which the BWA will install a meter on the customer’s request. (Customer with a fixed rate requesting meter)</p> <p>5b) This refers to the time it takes between the customer’s request for, and the actual repositioning of the meter.</p>	<p>Meter to be installed within thirty (30) working days of receipt of request.</p> <p>Meter to be relocated within fifteen (15) working days of receipt of request and payment of deposit where applicable (Assuming the request is feasible)</p>	<p>\$15 (R) \$30 (C)</p> <p>\$15 (R) \$30 (C)</p>
<p>GWS 6</p>	<p>Repair/Replacement of Faulty Meter</p> <p>This refers to the time taken, after the report of a fault, for the BWA to assess and repair/replace a faulty meter, where applicable.</p>	<p>Assess and determine operational status of meter and report findings to the customer within ten (10) working days.</p> <p>Replace/repair faulty meter within twenty</p>	<p>\$15 (R) \$30 (C)</p> <p>\$15 (R)</p>

STANDARD	SERVICE CATEGORY	TARGET	COMPENSATION
		(20) working days of confirmation of defect.	\$30 (C)
GWS 7	<p>Reconnection After Payment of Overdue Amount and Reconnection Fee</p> <p>This refers to the timely reconnection of a customer's service after satisfactory settlement of overdue amounts and reconnection fee at the BWA's offices.</p>	Maximum of twenty-four (24) hours to restore supply	\$15 (R) \$30 (C)
GWS 8 NEW	<p>Application for Reconnection of service previously disconnected from the main</p> <p>This refers to the timely reconnection of a customer's service that was disconnected from the main, after satisfactory payment of applicable fees at the BWA's offices.</p>	<p>Residential (R) - Seven (7) working days</p> <p>Commercial (C) - Five (5) working days</p>	\$15 (R) \$30 (C)
GWS 9 (Previously GWS 8)	<p>Scheduling of Field Appointments</p> <p>This refers to appointments scheduled by BWA representatives. Where the BWA is unable to keep an appointment with a customer, the BWA will contact the customer at least twenty-four (24) hours before the scheduled appointment to cancel and notify of a new date. (Monday to Friday)</p>	All scheduled appointments should be honoured and are to be scheduled between the hours of (8:00-10:00,10:00-12:00,12:00-14:00,14:00-16:00)	\$15 (R) \$30 (C)

STANDARD	SERVICE CATEGORY	TARGET	COMPENSATION
	The customer should be given a work order number as confirmation of scheduled appointment.		
GWS 10 (Previously GWS 9)	Reliability of Supply This refers to the provision of a minimum quantity of running water over a thirty (30) day period (a billing period).	Customers shall be supplied with at least 8m ³ of running water over a thirty (30) day period (a billing period).	Refund of the standard domestic thirty (30) day minimum charge. (R). Refund of double the standard domestic thirty (30) day minimum charge. (C)

Guaranteed Standards of Service Definitions and Specific Exemptions

Working Days

“Working Days” refers to Mondays to Fridays (8:00 a.m. to 4:00 p.m.) only and excludes public holidays and weekends. In measuring the response time for targets expressed in terms of working days, the day the complaint is made is excluded.

Drought Conditions

According to the Caribbean Institute for Meteorology and Hydrology (CIMH), there are four classes of drought: meteorological drought, agricultural drought, hydrological drought and socio-economic drought. Socio-economic drought is defined as the excess demand for water over its natural availability. Hydrological drought occurs where the water reserves in the aquifers and reservoirs fall below an established statistical average. Meteorological drought occurs where there is a prolonged period of below average precipitation, causing a natural shortage of water. Agricultural drought is experienced when there is below average moisture to support crop production. Barbados’ thirty (30) year average rainfall is 1250mm. CIMH is the authority in Barbados with respect to making a determination as to whether drought conditions exist. The Commission will

therefore defer to CIMH when the need arises for determining whether or not drought conditions are in effect.

GWS 1 - Installation of Service

Definition

1a.: Installation of Service in a Zone other than a Zone 1 (Zone A or Zone B) Area - No more than ten (10) working days in the instance of residential customers, and eight (8) working days for commercial customers, shall elapse between the application, payment and installation for a standard connection in a Zone other than a Zone 1 (Zone A or Zone B) area.

1b.: Installation of Service in a Zone 1 Area - Investigations shall be completed within ten (10) working days for residential customers, after the receipt of an application for service in a Zone 1 (Zone A or Zone B) area.

After completion of the investigation and approval in a Zone 1 (Zone A or Zone B) area, installations shall be completed within ten (10) working days for residential customers.

If the BWA fails to meet the target under this Standard, the affected residential customer will be offered a refund equivalent to the standard domestic thirty (30) day minimum charge. Commercial customers will be offered a refund equivalent to double the standard domestic thirty (30) day minimum charge.

Specific Exemptions:

- Where the customer fails to provide adequate or correct information; and
- Where the customer's water infrastructure does not meet the BWA's requirements for installation or is considered unfit for service, e.g., zonal restrictions, inappropriate materials used at customer end of connection.

GWS 2 – Issuance of First Bill

Definition

No more than twenty (20) working days shall elapse between the installation of service and the issuance of the first water bill. Where the BWA fails to issue the bill in the

stipulated time, it must pay a credit of \$15 to the affected residential customer and \$30 to the affected commercial customer.

Specific Exemption:

- Where the BWA is unable to gain access to the customer's premises through the actions of the customer.

GWS 3 - Response to Complaints (Amended)

Definition

The BWA shall acknowledge a customer's complaint about billing or other Standards of Service issues within five (5) working days of receipt of the complaint. The BWA must complete the investigation within fifteen (15) working days and provide findings (inclusive of the acknowledgment time). Additionally, a customer's service is not to be disconnected while a dispute is ongoing.

If the BWA fails to provide an acknowledgement in the specified time, a credit of \$15 for each affected residential customer and \$30 for each affected commercial customer shall be applied to the account. If the BWA fails to complete the investigation and communicate its findings to the affected customer, an additional credit of \$15 for a residential and \$30 for a commercial customer is applicable.

Specific Exemptions:

- Where the customer informs the BWA that they do not want further action to be taken on a matter;
- Where the customer requests the BWA take action at a later date than required by the standard;
- Where industrial action by BWA employees makes it impracticable for a response to be dispatched in the stipulated time; and
- Where the complaint was deemed frivolous or vexatious.

GWS 4 – Wrongful Disconnections

Definition

The BWA shall reconnect customers disconnected in error within ten (10) hours of notification of the error. Failure to accomplish this, will result in affected residential customers receiving \$50 and commercial customers receiving \$100 in compensation as credits on their next bills.

GWS 5 – Meter Installations or Meter Repositioning (Existing Service) (Amended)

Definition

- 5a) The BWA shall install a meter within thirty (30) working days of a customer's request, i.e., customers with fixed rates requesting a meter.
- 5b) The BWA shall reposition a meter within fifteen (15) working days of a customer's request and where applicable, the payment of the deposit.

Failure to meet the target in either instance will result in the BWA making a credit of \$15 and \$30 to affected residential and commercial customers, respectively.

Specific Exemption:

- Where the BWA is unable to gain access to premises where needed, or locate the service line and/ or main;
- Where a main has to be laid in order to facilitate the repositioning of the meter;
- Where there is a land ownership dispute and permission has not been granted by the landowner for the repositioning of the meter; and
- Where the delay of installation is solely attributable to the customer.

GWS 6 – Repair/Replacement of Faulty Meter

Definition

After the report of a faulty meter, the BWA has ten (10) working days to assess and determine the operational status of the meter and report the findings to the customer. After confirmation of a defect, the faulty meter shall be repaired or replaced, where applicable, within twenty working (20) days.

Where the BWA fails to complete and report the findings of the assessment to the customer within the stipulated time, each affected residential customer shall receive a

credit of \$15 and each affected commercial customer a credit of \$30. If the BWA does not repair/replace the faulty meter in the required time, each affected residential customer shall be compensated an additional credit of \$15 and each affected commercial customer a credit of \$30.

Specific Exemptions:

- Where an offence has been committed through interference with the BWA's metering equipment; and
- Where the BWA through no fault of its' own is unable to gain access to the customer's premises at the time agreed with the customer for such access.

GWS 7 - Reconnection after Payment of Overdue Amount and Reconnection Fee

Definition

Service that has been disconnected for non-payment (a lock installed on the meter), shall be reconnected within twenty-four (24) hours of satisfactory arrangement to settle the overdue amounts and the reconnection fee at the BWA's offices.

Failure by the BWA to connect the service within the stipulated time will result in each affected residential customer being entitled to a credit of \$15 and each affected commercial customer a credit of \$30.

Specific Exemption:

- Where the customer settles the outstanding balance at an establishment other than the BWA and does not supply the BWA with such proof. (This includes an online payment using a portal other than the BWA).

GWS 8 - Application for Reconnection of service previously disconnected from the main. (New)

Definition

After a request for the reconnection of a service previously disconnected from the water main, and after payment of the requisite charges at the BWA's office, the BWA shall restore service within seven (7) working days for residential customers and five (5) working days for commercial customers.

Failure by the BWA to connect the service within the stipulated time will result in each affected residential customer being entitled to a credit of \$15 and each affected commercial customer a credit of \$30.

Specific Exemptions:

- Where there was the disconnection of an illegal connection; and
- Where due to the elapse of time, extensive work may be required, for example, service may have to be re-laid from the main, or a new main may have to be installed due to capacity of the existing main.

GWS 9 – Scheduling of Field Appointments (Previously GWS 8)

Definition

Where the BWA's representative has scheduled an appointment with a customer and is later unable to keep the appointment, the BWA shall contact the customer at least twenty-four (24) hours before the scheduled appointment to reschedule to a date agreeable to both parties (Monday to Friday, 8:00 a.m. to 4:00 p.m.). Where the BWA fails to keep an appointment and does not notify the customer, a credit of \$15 shall be given to each affected residential customer and \$30 to each affected commercial customer.

Specific Exemptions:

- Where the customer cancels the appointment;
- Where it is impracticable to keep the appointment due to the action of a person other than the BWA's representative;
- Where it is impracticable to keep the appointment due to industrial action by the BWA's employees; and
- Where it is impracticable to keep the appointment due to a pandemic, the passage of a hurricane, storm, or other natural events.

GWS 10 – Reliability of Supply (Previously GWS 9)

Definition

Reliability of supply refers to the minimum quantity of running water that is to be supplied to each customer of the BWA over thirty (30) consecutive days (a billing period).

The BWA shall supply each customer, with at least 8m³ of running water over a thirty (30) day period.

Where the BWA fails to meet this target under the Standard, each affected residential customer is entitled to a refund equivalent to the standard domestic thirty (30) day minimum charge, and each commercial customer will be entitled to a refund equivalent to double the standard domestic thirty (30) day minimum charge.

Customers are advised, that in the absence of a legislative change, the continuous supply of water may be guaranteed, subject to the provision of Regulation 12(1) of the BWA Regulations.

Specific Exemptions:

- Subject to Regulation 12(1) of the BWA Regulations;
- Where persistent drought conditions exist as determined by the CIMH; and.
- Where there is a breakdown of machinery or equipment or any other force or cause of similar nature not within the control of the BWA and which by the exercise of due diligence it is unable to avoid, prevent or mitigate.

5.2 Compensatory Payments Claim Procedure

Customers are required to submit manual claims to the BWA when there is a breach of the Guaranteed Standards of Service. Compensation is only payable for periods beyond the target times. The BWA is required to design a claim form to facilitate this process. This form is to be made available to customers on the BWA's website and at its offices. Customer claims must be submitted within three (3) months of occurrence of the event giving rise to the claim. Customers making claims after three (3) months of occurrence of the event are not eligible for compensation.

The BWA shall investigate and resolve all claims within two (2) months. Where applicable, the BWA shall provide compensation in the form of a credit on the customer's bill. If the claim is denied, the BWA shall advise the customer of the reason for denial within two (2) months.

Customers have the right to make a complaint to the Commission if they consider that they have been wrongfully denied compensation.

On receipt of a complaint, the BWA is required to provide the customer with a work order number. This number will serve as the reference number in relation to the particular complaint for identification purposes.

The Commission considered the proration of compensation for the standard, depending on the time the BWA takes to resolve the issue. However, after considering the financial status of the BWA, a decision was taken to forego the prorating at this time.

5.3 Overall Standards of Service for BWA

The Overall Standards of Service are first presented in summarised form in **Table 2**, followed by a more detailed explanation of definitions and applicable exemptions.

Table 2 – Overall Standards of Service

STANDARD	SERVICE CATEGORY	TARGET
OWS 1	<p>Meter Reading</p> <p>This refers to the time frame between each meter reading.</p>	100% of accessible meters to be read monthly.
OWS 2 (Amended)	<p>Investigation of Water Quality</p> <p>This refers to the time frame in which the BWA will investigate and submit findings to the Commission where there is a complaint relating to water quality. (This relates to issues other than “White Water” or “Brown Water” that are rectified by the flushing of the mains).</p>	In 95% of instances, preliminary reports are to be submitted within seventy-two (72) hours and comprehensive reports are to be submitted within two (2) weeks of receipt of complaint.
OWS 3	<p>Reinstatement of Service after Electrical Outages by Supplier of Electricity</p> <p>This refers to the time frame in which service is restored after occurrence of an electrical outage. Customers in the affected areas shall be kept informed of the progress.</p>	In 95% instances, the water supply shall be reinstated within eight (8) hours of restoration of electrical supply

STANDARD	SERVICE CATEGORY	TARGET
<p>OWS 4</p>	<p>Reinstatement of Service after In-House Fault (Fault residing within the control of the BWA)</p> <p>This refers to the time frame in which service is restored after an in-house fault, e.g. mechanical failure, internal electrical fault. Customers in the affected areas shall be kept informed of the progress.</p>	<p>In 95% of instances, the supply shall be reinstated within eight (8) hours of occurrence of in-house fault.</p>
<p>OWS 5</p>	<p>Reinstatement of Property</p> <p>This refers to the time frame in which roads, walkways and/or property including guard walls, will be restored after damage due to mains or service pipes repairs, or the installation of new services.</p>	<p>In 95% of instances temporary reinstatement shall occur at the end of work each day. In 95% of instances, permanent reinstatement shall occur within twenty (20) working days of completion of works.</p>
<p>OWS 6</p>	<p>Minimum/Maximum Water Pressure</p> <p>This refers to the water pressure that must be maintained.</p>	<p>A water pressure of between 25 to 80 pounds per square inch (psi) shall be maintained at all times.</p>
<p>OWS 7</p>	<p>Notify Public of Intention to Interrupt Supply</p> <p>This refers to the period of notice to be given to customers when there are planned interruptions. Customers in the affected areas shall be kept informed of the progress.</p>	<p>In 95% of instances customers are to be notified not less than forty-eight (48) hours before scheduled service interruption.</p>
<p>OWS 8</p>	<p>Correction of Sewage Problem</p> <p>This refers to the time in which the BWA has to correct sewerage problems after being informed. (The problems referred to, include blockages of sewer lines, overflows and breakage of sewer lines, etc.)</p>	<p>95% of all sewerage problems shall be corrected within forty-eight (48) hours of notification of the sewerage problem.</p>
<p>OWS 9</p>	<p>Wastewater Effluent Quality</p> <p>This refers to the quality of wastewater effluent being discharged from the BWA's sewerage treatment plants.</p>	<p>95% of samples shall conform to the Environmental Protection Department's (EPD's) wastewater discharge standards.</p>

STANDARD	SERVICE CATEGORY	TARGET
OWS 10 (Amended)	<p>Potable Water Quality</p> <p>This refers to the quality of water supplied to customers. Potable water shall comply with the World Health Organization (WHO) Potable Water Guidelines including those for turbidity, chlorine residual, faecal coliforms, faecal streptococci, nitrates and total dissolved solids.</p>	100% of samples taken shall be within the potable water quality limits established by the WHO.
OWS 11 (Amended)	<p>Repair of Ruptured Pipes</p> <p>This refers to the time taken, after the report of a ruptured pipe, for the BWA to effect repairs (service lines).</p> <p>(Where the rupture appears before the meter, the BWA is responsible for effecting the repairs at no cost to the customer. Ruptures after the meter are the responsibility of the customer).</p>	90% of ruptured pipes shall be repaired within five (5) working days of notification of rupture.
OWS 12	<p>Repair of Ruptured Mains</p> <p>This refers to the time taken, after the report of a ruptured main, for the BWA to effect repairs (transmission lines). Customers in the affected areas shall be kept informed of the progress.</p>	In 95% of instances mains repairs shall be effected within twenty-four (24) hours of notification of rupture.
OWS 13 (New)	<p>Billing Accuracy</p> <p>This refers to the incidence of errors (typographical, errors of omission, etc.) on a customers' invoice.</p>	90% of bills are to be error free.

Overall Standards of Service Definitions and Specific Exemptions

OWS 1 - Meter Reading

Definition

One hundred percent (100%) of accessible meters are to be read on a monthly basis.

Specific Exemptions:

- Where there are persistent adverse weather conditions or pandemic restrictions;
and

- Where access is denied due to overgrown foliage, obstructing structures, locked gates, and/or aggressive animals.

OWS 2 - Investigation of Water Quality (Amended)

Definition

When there is a complaint relating to the water quality, the BWA shall, in a minimum of ninety-five percent (95%) of instances, investigate and submit a preliminary report to the Commission within seventy-two (72) hours of receipt of complaint. This shall be followed up by the submission of a comprehensive report within two (2) weeks of receipt of the initial complaint. These investigations do not include reports of 'white water' or 'brown' water. 'White' water is defined as water that is cloudy in appearance and caused by air bubbles. 'Brown' water usually arises after the repair of ruptured mains, resulting from the dislocation of corrosion in the pipe. Discoloured water complaints are addressed by the flushing of mains, and 'white water' dissipates over time.

OWS 3 - Reinstatement of Service after Electrical Outages by Supplier of Electricity

Definition

In the event of an electrical outage, the BWA shall restore ninety-five percent (95%) of service within eight (8) hours after the reinstatement of the electricity by the service provider, and shall keep customers in the affected areas informed of the progress.

Specific Exemptions:

- Where adverse weather conditions prevented the supply from being restored;
- Where industrial action by the BWA's employees prevented the supply from being restored;
- Where the action of a person other than a BWA representative prevented the supply from being restored;
- Where the electrical supply affects multiple sources and is disrupted or in excess of four (4) hours; and

- Where there is a breakdown of machinery or equipment, or any other force or cause of similar nature not within the control of the BWA, which by the exercise of diligence it is unable to avoid, prevent or mitigate.

OWS 4 - Reinstatement of Service after In-House Fault (Fault residing within the control of BWA)

Definition

In ninety-five percent (95%) of instances, service shall be restored within eight (8) hours of repair of an in-house fault. Customers in the affected areas shall be kept informed of the progress.

Specific Exemptions:

- Where adverse weather conditions prevented the supply from being restored;
- Where industrial action by the BWA's employees prevented the supply from being restored;
- Where the action of a person other than a BWA representative prevented the supply from being restored; and
- Where there has been the malicious destruction of the BWA's equipment.

OWS 5 - Reinstatement of Property

Definition

Where the BWA has caused damage to roads, walkways and/or property due to mains or service pipe repairs, or the installation of new services, temporary reinstatement shall be effected at the end of work each day, in ninety-five percent (95%) of instances. In ninety-five percent (95%) of instances, permanent reinstatement shall be completed within twenty (20) working days of completion of works.

Specific Exemption:

- Where the action of a person other than a BWA representative prevents reinstatement.

OWS 6 - Minimum/Maximum Water Pressure

Definition

The BWA shall maintain a water pressure of between twenty-five to eighty (25 – 80) psi at all times.

Specific Exemptions:

- During drought conditions;
- Where industrial action by the BWA's employees makes it impracticable to maintain the pressure standard;
- Where the action of a person other than the BWA's representative makes it impracticable to maintain the pressure standard;
- Where necessary work is being carried out that causes the pressure to fall; and
- Where there are major disruptions of distribution lines (mains).

OWS 7 - Notify Public of Intention to Interrupt Supply

Definition

In ninety-five percent (95%) of planned interruptions, potentially affected customers shall be given forty-eight (48) hours' prior notice.

Specific Exemptions:

- Where industrial action by the BWA's employees makes it impracticable to give notice of at least forty-eight (48) hours before the supply is cut off; and
- Where the action of a person other than the BWA's representative made it impracticable to give notice of at least forty-eight (48) hours before the supply is cut off.

OWS 8 - Correction of Sewerage Problem

Definition

In ninety-five percent (95%) of instances, the BWA shall correct sewage problems (blockages of sewer lines, overflows and breakage of sewer lines) within forty-eight (48) hours of notification of fault.

Specific Exemptions:

- Where industrial action by the BWA's employees makes it impracticable;
- Where there is a major breakdown of the wastewater treatment plant; and
- Where the sewer is inundated by storm water intrusion resulting from the passage of a hurricane or storm.

OWS 9 - Sewerage Effluent Quality

Definition

In ninety-five percent (95%) of instances, wastewater effluent should conform to the Environmental Protection Department's (EPD) wastewater disposal standards (see Tables 7 and 8 in Appendix II).

Specific Exemption:

- Where there is a major breakdown of the treatment plant.

OWS 10 - Potable Water Quality

Definition

One hundred percent (100%) of samples taken shall be within the parameter limits established by the WHO for potable water quality inclusive of those for turbidity, chlorine residual, faecal coliforms, faecal streptococci, nitrates, sulphates and total dissolved solids. The BWA will be required to conduct monthly testing for primary pollutants, quarterly testing for metals, pesticides and petroleum hydrocarbons (PHC). Bi-annually, the BWA will conduct widescreen testing (see Tables 5 & 6 in Appendix 1 for a detailed list of testing parameters and the frequency of the testing).

OWS 11 – Repair of Ruptured Pipes (Amended)

Definition

Where the BWA has received a report of a ruptured pipe (service line), in ninety percent (90%) of the cases, repairs shall be effected within five working (5) days.

Specific Exemption:

- Where industrial action by the BWA’s employees makes it impracticable.

OWS 12 – Repair of Ruptured Mains

Definition

Where the BWA has received a report of a ruptured main (transmission line), in ninety-five percent (95%) of instances, the repairs shall be effected within twenty-four (24) hours. Any delays shall be communicated to the affected customers in a timely manner.

Specific Exemptions:

- Where industrial action by the BWA’s employees makes it impracticable;
- Where severe weather prevented the repair; for example, hurricane; and
- Where the BWA is unable to gain access through the actions of a person other than an employee of the BWA.

General

It is recommended that the BWA provide truck-borne water where service disruptions are expected to last in excess of six (6) hours.

OWS 13 – Billing Accuracy (New)

Definition

In 90% of instances, the BWA shall issue bills that are accurate, error free and consistent with actual water usage. This includes incidence of errors (typographical, errors of omission, etc.) on customers’ individual invoice.

Specific Exemptions:

- Charges due to fraud or faulty customer equipment;

- Overdue amounts reflected on subsequent bills in the event that the previous bill was paid after its due date; and
- Issues pertaining to format.

SECTION 6 GENERAL EXEMPTIONS

6.0 Force Majeure

The Commission acknowledges that failure to meet the Guaranteed Standards of Service may be driven by circumstances or events beyond the control of the service provider. Consequently, the Standards of Service may be placed in abeyance in circumstances where conditions, outside the control of the BWA, make it impossible to meet the targets. The term used to define these events is *Force Majeure*. Black's Law Dictionary, Tenth Edition defines *Force Majeure*⁷ as:

"An event or effect that can be neither anticipated nor controlled; esp., an unexpected event that prevents someone from doing or completing something that he or she had agreed or officially planned to do. The term includes both acts of nature (e.g., floods and hurricanes) and acts of people (e.g., riot, strikes and wars)."

The Standards of Service regime states that the *force majeure* conditions under which the exemptions from the Standards of Service may be granted are:

- (a) An act of war (whether declared or not), hostile invasion, act of foreign enemies, terrorism or civil disorder;
- (b) A strike or strikes and/or other industrial action or blockade or embargo or any other form of civil disturbance (whether lawful or not);
- (c) Landslides, lightning strikes, hurricanes, floods, droughts, tempest, earthquake, volcanic eruption, or any other natural disaster of overwhelming proportions;
- (d) Riots;
- (e) Civil commotion;
- (f) Acts or threats of terrorism;
- (g) Insurrections;
- (h) Epidemics and/or pandemics;
- (i) Trade restrictions;
- (j) Inability to obtain any requisite Government permits; and

⁷ Bryan A. Garner, Black's Law Dictionary (United States: Thomson Reuters, 2009), 718.

- (k) Breakdown of machinery or equipment or any other force or cause of similar nature not within the control of the BWA and which by the exercise of diligence it is unable to avoid, prevent or mitigate.

6.1 Other Exemptions and Conditions

The Commission is cognisant that other circumstances may exist from time to time which may impede the BWA's ability to meet the prescribed Standards of Service. In such circumstances, where a customer is dissatisfied with the utility's application of an exemption, that customer may seek the Commission's guidance. Thereafter, the Commission may authorise the BWA's action or require it to honour the claim.

The situations which might fall into this category may include but are not limited to the following:

- (a) Where the BWA is unable to gain access to the customer's premises at the prearranged time;
- (b) Where inadequate directions have been provided by the customer;
- (c) Where the customer's installation does not meet the BWA's requirements for installation or is considered unfit for service, (e.g., zonal restrictions, inappropriate materials etc.);
- (d) Where the customer or the customer's agent fails to fulfil his/her obligations;
- (e) Where there are legal constraints that may prevent the BWA from meeting the standard;
- (f) Where the customer informs the BWA, in writing, that no further action should be taken on a matter;
- (g) Where the customer requests, in writing, the BWA to take action at a later date than that required by the standard;
- (h) Where the Commission reasonably considers that the customer's request or complaint is frivolous or vexation;
- (i) Where an offence has been committed through interference with the BWA's metering equipment;

- (j) Where the customer's account remains unpaid after the BWA has given the customer notice of its intention to disconnect the supply for non-payment;
- (k) Where the BWA is requested, by a public authority, to provide an emergency water supply to assist in emergency action and the provision of such services restricts the connection of a customer to a specified service or the rectification of a fault or service difficulty;
- (l) Where there is a negligent and willful act by the customer;
- (m) Where the customer is required to pay a charge to the BWA for connection to the service or for the use of the service and the BWA has reasonable grounds to believe, based on the customer's prior debt service record, that the customer would be unwilling or unable to pay the charges as it becomes due; and
- (n) Other unforeseeable circumstances beyond the control of the Parties against which it would have been unreasonable for the affected party to take precautions and which the affected party cannot foresee by using its best efforts.

SECTION 7 REASONS FOR PROPOSALS

In developing the inaugural Standards of Service, the Commission considered issues that were brought to its attention through customer complaints and queries, researched best practices and held discussions with the BWA. The BWA's ability to attain the standards was paramount in setting the targets and therefore the operational and technical challenges were considered. The objective of the standards was to encourage the utility to improve its service delivery to its customers. Therefore, the final targets were derived from the best practices in other jurisdictions, taking into consideration the BWA's ability to achieve them.

This second iteration follows a similar process. Best practices from countries with Quality of Service standards covering essentially some of the same categories currently outlined in the Commission's SOS were considered. The countries include Jamaica, Trinidad and Tobago, Gambia, United Kingdom, Australia and the Emirate of Abu Dhabi.

There was an analysis of the performance of the utility over the period 2018 - 2020 and discussions with the BWA. These discussions revealed, that the utility encountered several operational and financial challenges that impacted its ability to attain the targets. The BWA outlined measures being undertaken to mitigate against some of the countervailing issues, inclusive of projects that are ongoing and some that are expected to be implemented. Additionally, the Commission considered the responses to the consultation and the written interventions. Consideration was given to all of the foregoing in determining the targets for this iteration of the SOS.

Working days

The previous iteration of the SOS included references to calendar days and working days. For the avoidance of confusion, and for consistency in this SOS document, the targets are expressed in working days only.

New Guaranteed Standard - GWS 8 - Reconnection After Payment of Overdue Amount and Reconnection Fee

As a result of challenges expressed by the BWA in relation to attaining the standard for reconnections under GWS 7, in instances where the service had been disconnected from

the main, it was considered prudent to add a new standard. GWS 7 addresses the components of the original standard in relation to reconnections where a lock has been placed on the meter. However, GWS 8, relates to reconnections where the service was disconnected from the main. In order to effect the reconnection, the BWA has to drill into the ground to access the main. Since the BWA informed that this type of reconnection was akin to the installation of a new service, a target of seven (7) working days was allotted for effecting the reconnection for residential customers and five (5) days for commercial customers.

Table 3 - New Standard GWS 8

STANDARD	SERVICE CATEGORY	TARGET
GWS 8	<p>Application for Reconnection of service that was disconnected from the main.</p> <p>This refers to the timely reconnection of a customer's service that was disconnected from the main, after satisfactory payment of fees at the BWA's offices.</p>	<p>Residential - 7 working days Commercial - 5 working days</p>

New Overall Standard - OWS 13 Billing Accuracy

There has been the addition of one new standard, emanating from complaints of erroneous bills received during the 2018 - 2020 period. Customers complained about errors such as incorrect assessments due to inaccurate meter readings, typographical errors, mix-up in account numbers, or customers being billed for incorrect meters. Another common concern was that the graphical depiction of usage on the bill typically is not in alignment with the actual historical usage. As a result, customers were likely to question the charges incurred, given the disconnect between the historical graph and the current charges. The Commission considers the inclusion of this new Standard which addresses this issue directly, is merited. The Commission is introducing a new Overall Standard - OWS 13 Billing Accuracy which addresses the provision of accurate billing information (accuracy of information on bills). Customers should be able to rely on the charges and therefore the utility is required to ensure that at least 90% of the bills issued

are accurate. This target should not be onerous on the utility but should incentivize to ensure its billing function is operating efficiently. This also provides a measure of assurance to the customer that the bill received is relatively error free.

Table 4 – New Standards OWS13

STANDARD	SERVICE CATEGORY	TARGET
OWS 13	<p>Billing Accuracy</p> <p>This refers to the incidence of errors (typographical, errors of omission, etc.) on customers’ individual invoice.</p>	90% of bills are to be error free.

Amendment to GWS 1 – Installation of a Service

Under the proposals for the new Zones A to E instead of Zones 1-5, which have already been agreed to by Cabinet, commercial activity in Zone A will be prohibited. Given this prohibition, the Commission deems it superfluous to set targets for commercial entities. Hence, the targets for the completion of an investigation for a commercial service in a Zone 1 area have been eliminated.

The target days have been revised to working days. The BWA is required to complete the installation of a residential service in ten (10) working days and a commercial service in eight (8) working days after the application. This is comparable to the Regulated Industries Commission in Trinidad (the “RIC”), which requires the feasibility of the application to be completed in five (5) working days and the installation of service in seven (7) working days. The Office of Utility Regulation in Jamaica (the “OUR”) requires the installation to be completed within (10) working days.

Amendment to GWS 3 – Response to complaints

The time for the BWA to acknowledge complaints has been adjusted from seven (7) days to five (5) working days. However, this does not constitute a significant change, merely a change for consistency. This is also in alignment with the standards in regulated

industries in the Caribbean. The RIC and the OUR require complaints to be acknowledged in five (5) working days. The time for the completion of investigation of complaints is within fifteen (15) working days.

Addition to GWS 5 – Meter Installation or Meter Repositioning (Existing Service)

As a result of complaints received from customers on the lengthy process to reposition a meter on request, the Commission introduced a standard. However, instead of a completely new standard, since both installation and repositioning relate to the meter, GWS 5 is subdivided into two parts. Section 5a, is the original standard which refers to the request for the installation of a meter, whilst section 5b addresses the time it takes for the meter to be repositioned on a customer's request. The BWA must assess the request to determine its feasibility and the cost of the job. In instances where a deposit is required due to the nature of work to be done to effect the repositioning, the time that elapses between the notification of the necessity for a deposit, and the actual payment, will be taken into consideration. The Commission considers that the allocated time of fifteen (15) working days would be adequate to complete the task. This approximates half of the time it takes to effect the installation of a meter.

Amendment to OWS 2 – Investigation of Water Quality

This standard was initially designed to address water quality issues that could potentially have an adverse effect on customers. Thus, the necessity for a timely investigation to allow corrective action to be taken, in order to minimize or eliminate the threat. It was not intended for this standard to address basic complaints such as 'white water' or 'brown water'. A qualifier was inserted into the standard for avoidance of doubt as to the definition.

Amendment to OWS 10 – Potable Water Quality

The delivery of safe drinking water is fundamental. Thus, the need for consistent comprehensive testing to ensure that the standard is maintained. However, the original listing of parameters in Appendix 1 – Table 6 of the first iteration of the SOS was extensive and costly to be tested on a daily basis. The Commission thought it prudent to reduce the list of parameters to be tested frequently. However, the BWA will still be required on a bi-annual basis to conduct widescreen testing of the extensive list of parameters. Whilst there

has been a reduction in the parameters to be tested on a daily basis, there is no compromise in the quality of the water as the key parameters will continue to be tested. Additionally, metals, pesticides and Petroleum Hydrocarbons (PHC) will be tested quarterly (See Appendix 1 - Table 5).

Amendment to OWS 11 – Repair of Ruptured Pipes

The aged infrastructure that is prone to breakage has led to the proliferation of leaks. When the target was initially set, there was an average of 800 breaks per month, however, the average number of breaks per month have been increasing with 1,366 for the year 2020. The BWA indicated that the exploding number of breakages coupled with labour, material and transportation challenges, impeded its ability to attain the original target. In light of the challenges, the target is amended to the threshold of 90% repairs within five (5) working days.

7.0 Written Submissions of Intervenors

This section will outline and discuss the comments submitted by the Intervenors, provide the Commission’s comments on the issues raised and how these considerations informed the Commission’s final determinations.

7.1 Detailed Analysis of Submissions by Intervenors

Mrs. Aycock-Harding (Intervenor) and the BWA’s response

The following is a summary of the responses to the issues raised in the written Hearing on the Proposed Standards of Service for the Barbados Water Authority (BWA) 2022 and the Commission’s corresponding analyses.

A written submission was received from Mrs. Aycock-Harding who was granted intervenor status. Mrs. Aycock-Harding’s concerns related to the testing procedure and the handling of their outcomes. Specifically, the person performing the test, the collection points from which the sample will be taken, and the process to be followed should the test result indicate a health hazard. Mrs. Aycock-Harding advised that these concerns arose as a result of a negative experience with the tap water in her area. She reiterated that the intended purpose of her intervention was to protect the health of persons dependent on

the BWA for their supply of potable water and did not believe that the terms outlined in the proposed standards provided adequately for this protection.

BWA's Response to Mrs. Aycock-Harding

The BWA responded under affidavit and advised that it conducted sampling of water in its distribution on a weekly basis. The field list of sampling sites was generated by the Best Dos Santos Public Health Laboratory in conjunction with the BWA and shared with the Environmental Health Department of the Ministry of Health. The BWA advised that the Water Quality Officers visit the sites, take samples of the water and test it for free chloroform residual. The samples are taken to the Best Dos Santos Public Health Laboratory to be tested for total coliforms. If a test returns a positive result, the BWA is notified immediately and a repeat sample is done within 24 hours.

The BWA informed that sampling at drinking water sources is also tested on a monthly basis for primary pollutants and the analysis is done by the Government Analytical Services Laboratory (the "GAS"). Tests for metals and pesticides are carried out quarterly whilst tests for the extended list of pollutants (wide screen test) are done every two years. The BWA advised that in all tests, specialized sampling containers are collected from the Best Dos Santos Public Health Laboratory and the GAS and are not kept by the BWA, maintaining the integrity of the testing process and ensuring there is no bias.

Whilst the BWA could not address the specifics of Mrs. Aycock-Harding's complaint, it confirmed that the BWA does not take samples from members of the public for testing as it would be unable to determine the conditions under which the samples may have been collected or whether they were done under sterile techniques.

The BWA further advised that where a customer is concerned about the quality of water coming from the tap, the BWA would investigate. Where the issue is in the customer's home, the BWA advises the customer to take a sample to the GAS for testing. In such cases, the BWA can do a contemporaneous sample and have it tested. The BWA submitted that if the problem is outside of the home, it would take a sample from the nearest possible source of supply and subject that sample to testing.

The BWA assures that whilst the WHO guidelines for drinking water suggest that sources be sampled at least every three (3) years, the BWA covers its sources monthly. The BWA further advised the guidelines for sampling a distribution system serving the size of Barbados' population of 280,000 would result in nine (9) samples per year. However, the BWA conducts between thirty-five (35) to fifty (50) distribution samples per week for free chlorine and bacteria.

Furthermore, international standards often require that water quality testing be done by government accredited laboratories. In Barbados, the Best Dos Santos Public Health Laboratory and the GAS are the main laboratories performing the required testing for both the private and public sectors in Barbados.

The Commission's response

Given the extensive testing that is done by the BWA over and above that recommended by the WHO, the Commission considers that the testing is more than adequate to address the concerns related to the water quality.

BWA's Intervention - GWS 1 (Installation of service)

In addition to the response to the intervenor, the BWA submitted under cover of Affidavits, a rationale for the review of the targets outlined in the Proposed Standards of Service for the Barbados Water Authority (BWA) 2022. In relation to GWS 1, the BWA advises that the zonal areas have not been finalized and therefore the inclusions should wait until the regulations are settled. The BWA advises that there should be reference to approval by the Town and Country Planning Office (the "TCPO") as the BWA should not be installing service for new buildings without approval from the TCPO. Therefore, the BWA wants it to be made explicitly clear that the stipulated time as it relates to the installation of a service commences after TCPO approval has been granted.

The Commission's response

The Commission notes the BWA's concerns and has made the appropriate insertions in Table 1 alerting to the fact that the zones have not been settled. The Commission has also included a proviso advising that the time does not commence until after the appropriate approval has been given to the customer by the TCPO.

BWA's Intervention - GWS 3 (Response to Complaints)

The BWA advised that the target it used to calculate the compliance rate for GWS 3 was 20 working days and that was challenging. The BWA maintains that the tightening of the metric to 15 working days will lead to a deterioration in the performance. The BWA informed that, during the fourth quarter of 2021, a dedicated unit was created to investigate complaints. Immediate improvements were realized, however, the BWA opined that a more stringent standard would cause a regression in the performance. The BWA averaged one hundred and two (102) residential and sixteen (16) commercial complaints per quarter for the past three (3) years. The BWA considers that a target of 20 working days would permit it to build capacity and enhance performance to an acceptable level to the benefit of all stakeholders.

The Commission's response

The Commission considered the information provided by the BWA in support of its proposal. However, the Commission was unable to make a thorough assessment. Whilst the BWA submitted the number of complaints received from the first quarter in 2019 to the first quarter in 2022 and the percentage completion rate, the BWA failed to provide the actual number of investigations completed and the average time taken to complete the investigation. Thus, the Commission is unable to evaluate whether the BWA marginally failed or significantly failed to complete investigations in the stipulated time. Despite this, the Commission is cognizant, that whilst some investigations may be completed speedily, depending on the nature of the complaint, more time may be required. The OUR and RIC require investigations to be completed in thirty (30) working days. The Belize Water Service is required to complete the investigation and provide a substantive reply in thirty (30) days. However, given the inconvenience to the customer whilst the investigation is ongoing, the Commission considers the allotted time of fifteen (15) working days, to be adequate time for the investigation to be completed.

BWA's Intervention - GWS 5 (Meter Installation or Meter Repositioning of Existing Service)

The BWA requested that 'and/ or main' be included in the specific exemption for GWS 5a. In relation to GWS 5b, the BWA is requesting that the proposed target of fifteen (15) days

to reposition the meter be changed to sixty (60) working days instead. The BWA informs that repositioning a meter requires as much as or more effort as installing a new service. The BWA contends that there may be instances where a main has to be laid or located and this can take some time. Additionally, there may be land ownership disputes and access to meter issues. The BWA is requesting a specific exemption where it is refused access and/or permission for the meter repositioning by the land owner(s) and to do otherwise would constitute trespassing.

The Commission's response

The Commission has considered the BWA's proposal in relation to increasing the target time to sixty (60) working days. However, by the BWA's own admission, the installation of a service does not take sixty (60) working days. It would therefore be remiss of the Commission to allow the customer to be disadvantaged for an extraordinary length of time, awaiting the repositioning of a meter, given that a new installation must be completed in ten (10) working days for residential customers and eight (8) working days for commercial customers.

However, the Commission will include specific exemptions to address unexpected issues that may impact on the BWA's ability to complete the repositioning within the stipulated time. Furthermore, the Commission will include 'and/ or main' in the specific exemptions under GWS 5a. The Commission will also insert a qualifier in the specific exemptions for clarity where there are land ownership disputes.

Notwithstanding the inclusion of these qualifiers, the Commission still considers the standard as fifteen (15) working days.

BWA's Intervention - GWS 8 (Application for Reconnection of service previously disconnected from the main)

The BWA contends that the standard operating procedure employed to reconnect a service to a main is identical to those employed in the installation of a new meter service as regulated by GWS 1. The BWA reiterated that these reconnections were more logistically complex than an ordinary reconnection with the removal of a lock as regulated by GWS 7. The BWA advised that the actual time taken to reconnect to the mains

averaged twenty-three (23) calendar/ sixteen (16) working days in the first quarter of 2022. The BWA advised that due to the time elapsed, extensive work may be required, for example, the service may have to be re-laid from the main or a new main may have to be installed due to the capacity of the existing main. The BWA recommends, that the target remain at fourteen (14) or ten (10) working days for residential and commercial customers respectively, given the issues with available resources and the target reviewed within a year.

The Commission's response

The Commission notes the concerns expressed by the BWA in relation to GWS 8 - Application for Reconnection of service previously disconnected from the main. However, the BWA has not indicated how many actual requests for such connections are received during the year. In the first iteration of the SOS, reconnections of this type were covered under regular reconnections and the BWA had 24 hours to effect the reconnections. The Commission will include specific exemptions which will address the anomalies. This standard is not applicable to illegal connections that were disconnected by the BWA. In these instances, a request for reconnection will be treated as a new connection and GWS 1 would be applicable.

BWA's Intervention - GWS 9 (Scheduling of Field Appointments) (Previously GWS 8)

The BWA requested that consideration be given to the fact that there are numerous occasions where staff are called away to national/Ministerial meetings at short notice and will not be able to meet the 24 hours' prior notice.

The Commission's response

Whilst there will be occasions where the BWA staff may be called to meetings on short notice, there is no need for a specific inclusion as this exception would be covered under the specific exemptions. There is no need for this specific inclusion.

BWA's Intervention - GWS 10 (Reliability of Supply) (Previously GWS 9)

The BWA advised that it currently does not have the technical capacity to report on this standard. The utility informed that the distribution system is not designed or configured

to record the overall quantity of water delivered to every customer. Reconfiguring the system will take at least 18 to 24 months if the funding is available. The BWA is recommending that there be a temporary suspension of this standard for the 2022-2025 period.

The Commission's response

It is imperative that customers receive an acceptable level of service, which is by definition an uninterrupted supply of running water. The BWA must be held to account to its mandate of supplying the island with potable water and this standard is one way of ensuring accountability. Therefore, there will be no temporary suspension of this standard.

BWA's Intervention - OWS 3 (Reinstatement of Service after Electrical outages by supplier of electricity)

The BWA informed that in 95% of instances, the water supply is reinstated within eight (8) hours of restoration of electricity supply, except in cases where the particular distribution system has multiple sources and all of the sources were affected by the electrical outage. The longer the downtime, the longer it takes to reinstate the service. Additionally, a large distribution system with only one source can take approximately one (1) day for all services to be reinstated. The BWA requested an amendment to the standard that states '*In 95% of instances, the water supply shall be reinstated within eight (8) hours of restoration of electrical supply except where the electrical supply affects multiple sources and is disrupted for in excess of four (4) hours*'.

The Commission's response

The Commission notes the concern and the resultant problems where multiple sources are disrupted for an extended period of time. However, the Commission determines that the proviso is not required and the original standard will be retained.

BWA's Intervention - OWS 4 (Reinstatement of Service after In-House Fault)

The BWA believes that similar to OWS 3 there should be an amendment to the standard which states '*In 95% of instances, the water supply shall be reinstated within eight (8) hours of*

restoration of electrical supply except where the electrical supply affects multiple sources and is disrupted for in excess of four (4) hours'.

The Commission's response

The Commission does not concur with the position adopted by the BWA. This standard is in reference to in-house faults i.e., faults directly attributable to the BWA and not the electric company. Since this is totally in the control of the BWA, all efforts must be made to ensure that in-house faults are speedily resolved. The Commission has determined that this standard shall not be adjusted.

BWA's Intervention - OWS 5 (Reinstatement of Property)

The BWA is recommending that the target for temporary reinstatement shall be within 24 hours and not at the end of each work day. However, the utility does not believe that due to resource challenges twenty-four (24) hours is a realistic target. The BWA is recommending that the standard be changed to thirty-six (36) hours for temporary reinstatement. However, temporary reinstatements such as blocked driveways, poorly lit streets and holes on a dark bend will be reinstated within 24 hours. The utility does not believe that twenty (20) days for permanent reinstatement is realistic as the suppliers are experiencing issues acquiring raw materials to complete permanent reinstatement. The BWA is requesting an increase in the target to thirty (30) working days.

The Commission's response

The Commission recognizes that there have been logistic issues disrupting the supply chain, rendering materials unavailable. However, this must be weighed against the inconvenience of the customer whose life has been disrupted. Notwithstanding the challenges being faced by the BWA, where a customer is unable to freely access their property as a result of the BWA's inability to restore the property in its original state is a significant disruption. The disruption to a customer if the property is not temporarily restored after work has been completed would be a major inconvenience. Therefore, the metric for the temporary reinstatement remains by the end of the workday. Additionally, the logistic problems are expected to improve in due course. The permanent restoration must be completed within the twenty (20) working days allotted.

BWA's Intervention - OWS 6 (Minimum/Maximum Water Pressure)

The BWA advises that it does not have the technical capacity to report on this standard, and that compliance with this standard would require the installation of a system of measurement points across the network which would see the sub-division of the network into a series of districts with an average of five hundred (500) property connections per district.

The establishment of these District Metered Areas ("DMA") would enable the extrapolation of the relative pressure being experienced within the districts. The relevant pressure measurement equipment and data recording devices would report the information back to the information servers. However, the distribution system is not designed or reconfigured to record pressures at the customers' connection. The BWA advised that it does not have the capacity currently, as a significant capital outlay is required to accomplish the installations, given the hardware requirements.

The utility advised that the project had been conceptualized prior to the implementation of the SOS but the funding was not available. The utility reported that a proposal was submitted for a project that would enable compliance with the standard but it will take at least eighteen (18) to twenty-four (24) months if the BWA is able to secure the funding. The utility also reported that there were a number of constraints that may impact on the implementation. The BWA recommends that there should be a temporary suspension of this standard for at least eighteen (18) months.

The Commission's response

Since the standard originated with the BWA, the obvious assumption was that the BWA possessed the capabilities to facilitate compliance. Furthermore, the BWA previously indicated the DMA project commenced in 2017 and would have been completed in three (3) year. At its completion, the BWA would have been able to report on this standard. However, the project has not been completed. This latest submission is, the BWA's ability to report on the standard is predicated on its ability to secure the funding.

Given the importance of a consistent water pressure and the BWA's signature of the subsidiary agreement with the Green Climate Fund, the Commission considers that the

BWA should be able to report on the water pressure. There will be no suspension of the standard.

BWA's Intervention - OWS 11 (Repair of Ruptured Pipes (Amended))

The BWA advised that between 40-45% of ruptured pipes are repaired within five (5) days of notification. The BWA is recommending a relaxation of the standard to the following: 55% for 2022, 60% for 2023 and 70% for 2024.

The BWA advised that some of the challenges experience between 2019 and 2022 were:

- The rapid deterioration of the High Density Polyethylene pipe, therefore increasing the frequency of ruptured pipes. The average frequency of ruptured pipes pre 2018 was eight hundred (800) per month. Over the period 2019 to 2022, the average number of ruptured pipes per month have increased over the range of one thousand, two hundred (1,200) and one thousand five hundred (1,500).
- A reduction of the number of plumbing crews from twenty-three (23) to thirteen (13) due to attrition over the last decade.
- The high cumulative number of days plumbing trucks have been unavailable
- Unavailability of materials and fittings because it is out of stock.
- Unavailability of equipment i.e., compressors.

The BWA advised that it is making critical adjustments in an effort of improving its performance including:

- Appointed additional persons in the posts of plumber and is in the process of appointing additional Plumbers' mates.
- In the process of increasing the number of plumbing crews from thirteen (13) to twenty-three (23).
- In the process of increasing the number of plumbing trucks to accommodate the increased number of plumbing crews.
- Currently changing out the old fleet of plumbing trucks.
- In the process of procuring adequate stocks of materials and fittings.
- In the process of receiving an adequate number of compressors to outfit crews.

The BWA recommended a 'step or phased approach' over a three (3) year period to the setting and achieving of attainable targets.

The Commission's response

Whilst the BWA has submitted statistics in relation to the number of times it has been able to complete the job in the required time, the BWA has not indicated the average length of time to complete a job. This information would have been instructive. The Commission has considered the proposal advanced by the BWA given the challenges that it is currently facing. Being mindful of the challenges but cognizant of the implications where leaks remain unaddressed for an unspecified period of time, the Commission had proposed a reduction of the target to 80%. Barbados is a water scarce country and given the high level of non-revenue water, it would be remiss of the Commission not to ensure that leaks are repaired as a matter of urgency. Timely repair of minor leaks, before they progress to major bursts, reduces the repair time and service disruptions.

A proactive leak detection and repair campaign reduces the disruption of service to customers. Small leaks can be repaired in a shorter period than a burst of major mains. Burst mains are more disruptive, both in terms of water outages and impediments to the flow of traffic when repairs are being undertaken. One must also be mindful of the risk of contamination from foreign matter intruding into the water supply through the leaks and the resultant threat to public health.

Given the BWA's proposal to remediate the situation, the Commission considers that the original target of 90% be reinstated. There has however been a relaxation in time to repair as the BWA now has five (5) working days to complete the repairs as opposed to the five (5) calendar days previously allowed. Notwithstanding the issues raised by the BWA the customers are entitled to an acceptable level of service and the longer the leaks remain unrepaired the greater the impact on customers.

SECTION 8 ADMINISTRATION

8.0 Monitoring and Enforcement of Standards

BWA shall submit quarterly regulatory Standards of Service reports to the Commission no later than one (1) month after the end of each quarter in a given year. Each quarterly report must include the following:

- The number of breaches under each Guaranteed Standard of Service (GWS 1 to GWS 10) and percentage compliance;
- The actual average times taken to respond to and/or rectify issues referred to under each Guaranteed Standard of Service;
- The level of compliance as a percentage of each Overall Standard of Service (OWS 1 to OWS 13);
- Details of any extenuating circumstances that would have prevented BWA from achieving the targets of the Overall Standards of Service; and
- The value of compensation attributable to each Guaranteed Standard of Service.

BWA shall submit annual reports to the Commission no later than January 31st each year. Each annual report must include the following:

- The number of customers eligible for compensation during the previous financial year;
- The total value of eligible compensation;
- The number of customers receiving compensation;
- The amount of compensation paid; and
- The value of compensation attributable to each Guaranteed Standard of Service as well as the actual value of compensation paid in each instance.

Compliance with the Standards of Service will be evaluated by the Commission on a quarterly basis and annual reports shall be submitted no later than one (1) month after the end of the applicable reporting year. The Standards of Service reporting period commences on April 30th, 2023. Additionally, the BWA is required to submit the Regulatory Reports as outlined in the Regulatory Reporting Framework.

The Commission reserves the right to conduct independent investigations that seek to determine the extent to which BWA is meeting the Standards of Service.

Where BWA fails to achieve an Overall Standard, BWA shall provide an explanation to the Commission. Where BWA continually fails to achieve an Overall Standard, and it appears that no reasonable effort has been made to rectify the breach, Section 43 of the FTCA and Sections 31 and 38 of the URA may be invoked as required by these Acts, which make provisions for the imposition of fines and penalties when the service provider is deemed not to be in compliance with prescribed Standards of Service.

8.1 Public Disclosure of Information

The Commission shall publicize the yearly statistics related to BWA's performance in attaining the Guaranteed Standards of Service and Overall Standards of Service.

8.2 Public Education

BWA shall make available to its customers by post or electronically within two (2) months of the implementation of this Decision, the Table of Guaranteed Standards of Service as set out herein in this Decision as Table 1. The placement of the Table of Guaranteed Standards of Service on the BWA's website should be submitted to the Commission for review and approval at least 5 working days prior to publishing.

In addition, BWA must, through public relation efforts, educate its customers, on the complaints process, including publicizing contact numbers and email addresses for making complaints. BWA shall also place its claim forms and official complaint forms on its website, and place physical copies at its main office and other outlets.

8.3 Implementation and Review

The Standards of Service for the BWA shall come into effect on January 1, 2023 for a period of three (3) years, provided that the Commission shall be at liberty to extend the validity of its Decision for a further period of no more than two (2) years. These Standards of Service shall be subject to review by the Commission.

APPENDIX 1

Table 5 - Drinking Water Testing Sampling Regime

Monthly	Quarterly	Quarterly	Quarterly	Bi-annually
Primary Pollutants	Metals	Pesticides	PHC	Widescreen
ALKALINITY	COPPER	Atrazine	Oil and Grease	
AMMONIA_N	DISSIRON	Simazine		
BICARBONATE	DISSMAGANESE			
CALCIUM	DISSMANGANESE			
CHLORIDE	LEAD			
ELECTRICALCOND	MAGNESIUM			
F_COLIFORM	TOTALIRON			
F_STREP	TOTALMAGANESE			
NITRATE_N	TOTALMANGANESE			
NITRITE-N	ZINC			
ORTHO_P				
pH				
POTASSIUM				
SODIUM				
SULPHATE				
T_COLIFORM				
TDS				
TOTAL HARDNESS				
TOTAL_PHOS				
TOTALHARDNESS				
TSS				
TURBIDITY				

Table 6 - Drinking Water Quality Standard
Guideline values for chemicals that are of health significance in drinking-water⁸

Chemical	Guideline Value	
	(mg/l)	µg/l
Acrylamide	0.0005 ^a	0.5 ^a
Alachlor	0.02 ^a	20 ^a
Aldicarb	0.01	10
Aldrin and dieldrin	0.00003	0.3
Antimony	0.02	20
Arsenic	0.01 (A, T)	10 (A, T)
Atrazine	0.1	100
Barium	0.7	700
Benzene	0.01 ^a	10 ^a
Benzo[<i>a</i>]pyrene	0.0007 ^a	0.7 ^a
Boron	2.4	2 400
Bromate	0.01 ^a (A, T)	10 ^a (A, T)
Bromodichloromethane	0.06 ^a	60 ^a
Bromoform	0.1	100
Cadmium	0.003	3
Carbofuran	0.007	7
Carbon tetrachloride	0.004	4
Chlorate	0.7 (D)	700(D)
Chlordane	0.0002	0.2
Chlorine	5 (C)	5 000(C)
Chlorite	0.7 (D)	700 (D)
Chloroform	0.3	300
Chlorotoluron	0.03	30
Chlorpyrifos	0.03	30
Chromium	0.05 (P)	50(P)
Copper	2	2 000
Cyanazine	0.0006	0.6
2,4-dichlorophenoxyacetic acid	0.03	30
2,4-Dichlorophenoxybutyric acid	.09	90
DDT and metabolites	0.001	1
Dibromoacetonitrile	0.07	70
Dibromochloromethane	0.1	100
1,2-Dibromo-3-chloropropane,	0.001 ^a	1 ^a
1,2-Dibromoethane,	0.0004 ^a (P)	0.4 ^a (P)
Dichloroacetate	0.05 ^a (D)	50 ^a (D)
Dichloroacetonitrile	0.02 (P)	20 (P)
1,2-Dichlorobenzene	1 (C)	1 000 (C)
1,4-Dichlorobenzene	0.3 (C)	300 (C)

⁸ World Health Organization. (2011). Guidelines for Drinking-Water Quality. Fourth Edition.

Chemical	Guideline Value	
	(mg/l)	µg/l
1,2-Dichloroethane	0.03 ^a	30 ^a
1,2-Dichloroethene	0.05	50
Dichloromethane	0.02	20
1,2-Dichloropropane (1,2-DCP)	0.04 (P)	40 (P)
1,3-Dichloropropene	0.02 ^a	20
Dichlorprop	0.1	100
Di(2-ethylhexyl)phthalate	0.008	8
Dimethoate	0.006	6
1,4-Dioxane,	0.05 ^a	50 ^a
Edetic acid (EDTA)	0.6	600
Endrin	0.0006	0.6
Epichlorohydrin	0.0004 (P)	0.4 (P)
Ethylbenzene	0.3 (C)	300 (C)
Fenoprop	0.009	9
Fluoride	1.5 m	1 500
Hexachlorobutadiene	0.0006	0.6
Hydroxyatrazine	0.2	200
Isoproturon	0.009	9
Lead	0.01 (A,T)	10 (A,T)
Lindane	0.002	2
MCPA ^e	0.002	2
Mecoprop	0.01	10
Mercury	0.006	6
Methoxychlor	0.02	20
Metolachlor	0.01	10
Microcystin-LR	0.001 (P)	1 (P)
Molinate	0.006	6
Monochloramine	3	3 000
Monochloroacetate	0.02	20
Nickel	0.07	70
Nitrate (as NO ₃ ⁻)	50	50 000
Nitrilotriacetic acid (NTA)	0.2	200
Nitrite (as NO ₂ ⁻)	3	3 000
Pendimethalin	0.02	20
Pentachlorophenol	0.009 ^a (P)	9 ^a (9)
Selenium	0.04 (P)	40 (P)
Simazine	0.002	2
Sodium	50	50 000
dichloroisocyanurate	40	40 000
Styrene	0.02 (C)	20 (C)
2,4,5-T	0.009	9
Terbutylazine	0.007	7
Tetrachloroethene	0.04	40

Chemical	Guideline Value	
	(mg/l)	µg/l
Toluene	0.7 (C)	700 (C)
Trichloroacetate	0.2	200
Trichloroethene	0.02 (P)	20 (P)
2,4,6-Trichlorophenol,	0.2 ^a (C)	200 ^a (C)
Trifluralin	0.02	20
Trihalomethanes		
Uranium	0.03(P)	30 (P)
Vinyl chloride	0.0003 ^a	0.3 ^a
Xylenes	0.5(C)	500 (C)

(A), provisional guideline value because calculated guideline value is below the achievable quantification level;

(C), concentrations of the substance at or below the health-based guideline value may affect the appearance, taste or odour of the water, leading to consumer complaints;

(D), provisional guideline value because disinfection is likely to result in the guideline value being exceeded;

(P), provisional guideline value because of uncertainties in the health database;

(T), provisional guideline value because calculated guideline value is below the level that can be achieved through practical treatment methods, source protection, etc.

(a) - For substances that are considered to be carcinogenic, the guideline value is the concentration in drinking water associated with an upper-bound excess lifetime cancer risk of 10⁻⁵ (one additional case of cancer per 100 000 of the population ingesting drinking-water containing the substance at the guideline value for 70 years). Concentrations associated with upper-bound estimated excess lifetime cancer risks of 10⁻⁴ and 10⁻⁶ can be calculated by multiplying and dividing, respectively, the guideline value by 10.

(d) - Dichlorodiphenyltrichlorethane.

(e) - 4-(2-Methyl-4-chlorophenoxy) acetic acid.

APPENDIX II

Table 7 - Domestic Waste End of Pipe Standards⁹

Parameter	End of Pipe Standard
Biochemical Oxygen Demand	Class 1 ¹⁰ - 30mg/l Class 2 ¹¹ - 150mg/l
Total Suspended Solids (TSS)	Class 1 - 30mg/l Class 2 - 150mg/l
Total nitrogen (inorganic and organic)	Class 1 - 5mg/l Class 2 - 45mg/l
Total Phosphorous (inorganic and organic)	Class 1 - 1mg/l Class 2 - 10mg/l
pH	6-9 in Class 1 and 2 waters
Faecal Streptococci	Class 1 - Geometric mean of min. 5 samples should not exceed 35 colonies/100ml in any 30 day period
Faecal coliform	Class 1 - Geometric mean of min. 5 samples not exceed 200 colonies/100ml in any 30-day period. No more than 10% of samples exceed 400 colonies/100ml
Total Residual Chlorine	Class 1 - 0.1mg/l
Fats, oils and Grease	Class 1 - 15mg/l Class 2 - 50mg/l
Floatables	Not visible in Class 1 and 2 Waters

⁹ University of the West Indies, New Water Inc. (2004). List of Prohibited Concentrations as provided by the Environmental Engineering Division and Coastal Zone Management Unit, Ministry of Housing, Lands and Environment. Public Consultation. These prohibited concentrations have not been approved by the Cabinet of Barbados but with the promulgation of the Marine Pollution Control Act CAP. 392A of the Laws of Barbados have been adopted by the EPD.

¹⁰ Class 1- Highly sensitive to impacts of domestic wastewater

¹¹ Class 2- Less sensitive to domestic wastewater

Table 8 – Petroleum Hydrocarbons End of Pipe Standards for Class 1 Water.¹²

Parameter	End of Pipe Standard
Total Petroleum Hydrocarbons (TPH)	Max. daily discharge (mg/l): 10 Avg. Daily concentration over 30 consecutive days (mg/l):5
Total Oils & Greases	Max. daily discharge (mg/l): 10 Avg. Daily concentration over 30 consecutive days (mg/l): 5
Total Organic Carbon	Max. daily discharge (mg/l): 110 Avg. Daily concentration over 30 consecutive days (mg/l): 55

¹² University of the West Indies, New Water Inc. (2004). List of Prohibited Concentrations as provided by the Environmental Engineering Division and Coastal Zone Management Unit, Ministry of Housing, Lands and Environment. Public Consultation. These prohibited concentrations have not been approved by the Cabinet of Barbados but with the promulgation of the Marine Pollution Control Act CAP. 392A of the Laws of Barbados have been adopted by the EPD.

Dated this 12th day of December, 2022

Original Signed By

.....
Tammy Bryan
Chairman

Original Signed By

.....
Roger Barrow
Commissioner

Original Signed By

.....
Jermaine Beckford
Commissioner

Original Signed By

.....
Donley Carrington
Commissioner