



# FAIR TRADING COMMISSION

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## DECISION

### Barbados Water Authority Standards of Service 2018-2020

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## **SECTION 1 EXECUTIVE SUMMARY**

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In August 2014, by way of Statutory Instrument (SI) 2014 No. 65, the Fair Trading Commission (the Commission) was given the mandate to regulate the supply of potable water and the disposal of wastewater by the Barbados Water Authority (BWA). In fulfilment of this mandate, the Commission considered it prudent to begin the regulatory process with the development of Standards of Service for the sector.

After conducting research, and completing consultations with the service provider and customers, the Standards of Service were developed. The Commission balanced the interests of the customers with the financial and operational constraints of the BWA in determining the specifics of these Standards of Service.

This has resulted in the establishment of nine (9) Guaranteed Standards of Service and twelve (12) Overall Standards of Service. Some of the Guaranteed Standards of Service are:

- Installation of Service;
- Response to Complaints;
- Wrongful Disconnections;
- Repair/Replacement of Faulty Meter;
- Reconnection after Payment of Overdue Amount and Reconnection Fee; and
- Reliability of Supply.

The Standards of Service outline the time frame within which specific issues are to be addressed. In each instance where there is failure to meet a specific target for a Guaranteed Standard of Service, the BWA will be required to make a monetary, compensatory payment to the affected customer, except under force majeure conditions or other extenuating circumstances.

All claims are manual, therefore, the customer must submit the claim directly to the BWA when seeking compensation. In order to receive compensation, which will be given as a credit on the bill, customers must make their submissions within three (3) months of the occurrence.

In the case of the Overall Standards of Service, while there is no compensation for customers, the Commission may impose penalties when breaches occur.

Some of the service categories under the Overall Standards of Service include:

- Meter Reading;
- Reinstatement of Property;
- Notification of Planned Interruption;
- Potable Water Quality; and
- Repair of Ruptured Mains.

The Standards of Service will be implemented from January 1, 2018. This grace period will allow the BWA to prepare its operating systems for the administration of the Standards of Service. It also affords the BWA and the Commission the opportunity to sensitise the public. These Standards of Service will remain in effect until December 31, 2020.

## SECTION 2 INTRODUCTION

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### 2.0 Background

This document sets out the Commission's rationale for and determination on the Standards of Service for the Barbados Water Authority (BWA), which is the entity responsible for the supply of potable water and the treatment and disposal of wastewater. The Commission holds the view that Standards of Service are an important tool in ensuring that the BWA provides a safe, efficient and reliable service to its customers.

The purpose of the establishment of Standards of Service is to ensure that the BWA maintains a minimum quality of service and that the necessary incentives are in place to encourage compliance and improvements in its performance over time.

The Utilities Regulation Act, CAP. 282 of the Laws of Barbados (URA) provides for the determination of Standards of Service by the Commission. In discharging this responsibility and being transparent in its decision making processes, 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 (FTCA).

The BWA Standards of Service, as outlined herein, shall become effective from **January 1, 2018** and remain applicable until **December 31, 2020**.

The effective date of January 1, 2018, would enable the BWA to institute the appropriate measures to allow for compliance with the Standards of Service, data collection and monitoring.

## 2.1 Legislative Framework

### Authority to Establish Standards of Service

According to the FTCA, “Standards of Service” is defined at Section 2 as *“the quality and extent of service supplied by service providers”*.

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 regulated entity and the considerations that must be given when determining the same. Rule 63(2) of the Utilities Regulation Procedural Rules 2003, S.I. 2003 No.104 (URPR) of the Laws of Barbados, details the issues that may be included in the development of these Standards of Service. Together, these pieces of legislation provide the overarching 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) ...*

*(d) determine the standards of service applicable to service providers;*

*(e) monitor the standards of service supplied by service providers to ensure compliance; ...”*

Section 3(1) (d), (e) and (f) of the URA states, *inter alia*:

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

*(a) ...*

*(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 ... standards of service.”*

Additionally, Section 4 of the URA states:

*“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 speaks to issues that may be considered when setting Standards of Service. It specifically indicates that:

*“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.”*

### **Requirement to Consult**

The requirement for the Commission to consult with interested parties is established at Section 4(4) of the FTCA which dictates that, when exercising its powers to determine Standards of Service, the Commission must consult with specific parties.

Section 4(4) of the FTCA requires that:

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

### **Investigative Powers of the Commission**

Section 26(1) (d) of the FTCA empowers the Commission to compel the BWA to produce its books and records on the request of the Commission.

Section 26(1) (d) of the FTCA states:

*“For the purpose of the discharge of any of its functions under this Act or any law that the Commission has jurisdiction to administer the Commission shall have the power*

*(a)...*

*(d) to compel the production of such books, records, papers and documents as it may deem necessary or proper for any proceeding, investigation or hearing held by it;...”*



## **Fines and Penalties**

These Standards of Service are binding on the BWA. Sections 21, 31 and 38 of the URA, as well as Section 43 of the FTCA, prescribe the penalties that accrue where the utility fails to comply with the prescribed targets. Where there is a continuous failure to attain a target, the Commission will require an explanation from the BWA. If the BWA continues to be non-compliant, the Commission reserves the right to impose a penalty pursuant to Section 38(c) of the URA.

Section 21 of the URA indicates 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 of the URA stipulates that:

*“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.”*

Sections 43(1) of the FTCA and Section 31(1) of the URA stipulates that a service provider will be guilty of an offence for failure to comply with an order of the Commission and is liable to a fine of \$100,000 if convicted.

Section 43(1) of the FTCA and Section 31(1) of the URA asserts that:

*“Every service provider or business enterprise that fails or refuses to obey an order of the Commission made under this Act 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. “*

## Specific Exemptions

The Commission recognises that there will be instances where a Standard of Service will not be considered to be in breach, such as force majeure or certain conditions which exempt the BWA from being liable to carry out a particular Standards of Service. 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.”*

## **2.2 Consultation Process**

The consultation process was initiated with the issuance of the consultation paper on Standards of Service for the BWA on June 6, 2016. Subsequent to the issuance of the consultation paper, public fora were held at Alexandra School, St. Peter on July 5, 2016; Solidarity House, St. Michael on July 12, 2016; and the Grantley Adams Memorial School, St. Joseph on September 11, 2016. The BWA submitted comments on the consultation paper on two (2) separate occasions during the process and these were considered in the Decision. Both written and oral forms of consultation were utilised to facilitate feedback from a wide cross section of society.

The Commission wishes to thank all parties who participated in the consultative process.

## SECTION 3 THE DETERMINATION

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### 3.0 Policy Decision

Having considered all responses, analysed the existing and publicly available information on potable water and wastewater Standards of Service, and compared standards from regional and international jurisdictions, the Commission has determined that:

- The establishment of Guaranteed and Overall Standards of Service for the water and sewerage sector is appropriate;
- Compensatory payments shall be made by the BWA to individually affected customers for not achieving the targets under the Guaranteed Standards of Service;
- Penalties may be imposed for breaches of Standards of Service;
- The BWA is required to make public its compensation policy for its failure to attain a Guaranteed Standard of Service on its websites, through its Customer Service Representatives, on its bills etc.; and
- The BWA is required to report to the Commission, in quarterly and annual reports, on its performance under these Standards of Service.

The following sections set out the Guaranteed and Overall Standards of Service, which will be effective from January 1, 2018. This will allow the Commission to advise the public and the BWA to sensitise its customers and prepare its operating systems for the administration of the Standards of Service.

The Guaranteed Standards of Service require that the BWA make a compensatory payment to each individual customer who is affected by its failure to meet the defined targets.

The Overall Standards of Service are designed to reflect the performance of the BWA on the whole and are not defined by the service which an individual customer receives. There is no compensation to customers for failure to meet Overall Standards of Service.

The Standards of Service also include details of exemptions. Exemptions refer to situations where the Commission considers that failure to meet the Standards of Service is outside the control of the BWA.

### **3.1 Guaranteed Standards of Service for the BWA**

The Commission has made the following determination on the Guaranteed Standards of Service for the BWA. The Standards of Service are first presented in summarised form, followed by a more detailed explanation of definitions and applicable exemptions.

**Table 1 - Guaranteed Standards of Service**

<b>STANDARD</b>	<b>SERVICE CATEGORY</b>	<b>TARGET</b>	<b>COMPENSATION</b>
<b><u>GWS 1</u></b>	<b>Installation of Service.</b> 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 area.	Residential <sup>1</sup> - 14 days Commercial <sup>2</sup> - 10 days	Refund of the standard domestic 30 day minimum charge. (R)
	1b. This refers to the time to complete an investigation on receipt of an application for service in a Zone 1 area.	Residential - 14 days Commercial - 10 days	
	1c. This refers to the installation time after the completion of the investigation and approval in a Zone 1 area.	Residential - 14 days Commercial - 10 days	Refund of double the standard domestic 30 day minimum charge. (C)
	<b>(Zones are as defined by the BWA)</b>		
<b><u>GWS 2</u></b>	<b>Issuance of First Bill</b>  This refers to the time elapsing between the installation of water service and the issuance of the first water bill.  <b>(Interim bill to be issued if read bill cannot be generated)</b>	No more than 30 days after installation of service.	\$15 (R) \$30 (C)
<b><u>GWS 3</u></b>	<b>Response to Complaints</b>  This refers to the time frame in which the BWA must acknowledge a customer's complaint about billings or other Standards of Service issues.	Acknowledgement provided within 7 days of receipt of complaint.  Investigation of complaint and findings provided within 20 days of receipt of complaint. <b>(Inclusive of acknowledgement time)</b>	\$15 (R) \$30 (C)  \$15 (R) \$30 (C)
<b><u>GWS 4</u></b>	<b>Wrongful Disconnections</b>  This refers to the loss of service where the customer has been disconnected in error.	Reconnected within 10 hours after notification of the error.	\$50 (R) \$100 (C)

<sup>1</sup> Residential customers refers to persons that indicate they are applying for a domestic service on their application for water. (R)

<sup>2</sup> Commercial customers refers to persons that indicate they are applying for a commercial service on their application for water. (C)

STANDARD	SERVICE CATEGORY	TARGET	COMPENSATION
<u>GWS 5</u>	<p><b>Meter Installations (Existing Service)</b></p> <p>This refers to the time frame in which the BWA will install a meter on the customer's request. <b>(Customers with a fixed rate requesting a meter).</b></p>	Meter to be installed within 45 days of receipt of request.	\$15 (R) \$30 (C)
<u>GWS 6</u>	<p><b>Repair/Replacement of Faulty Meter</b></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 15 days.</p> <p>Replace/repair faulty meter within 30 days of confirmation of defect.</p>	\$15 (R) \$30 (C)  \$15 (R) \$30 (C)
<u>GWS 7</u>	<p><b>Reconnection After Payment of Overdue Amount and Reconnection Fee</b></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 24 hours to restore supply.	\$15 (R) \$30 (C)
<u>GWS 8</u>	<p><b>Scheduling of Field Appointments</b></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 24 hours before the scheduled appointment to cancel and notify of a new date. <b>(Monday to Friday)</b></p> <p>The customer should be given a work order number as confirmation of a scheduled appointment.</p>	<p>All scheduled appointments shall be honoured.</p> <p>Appointments may be scheduled: Morning (8:00 a.m. to 12:00 noon) or afternoon (12:01 p.m. to 4:00 p.m.)</p>	\$15 (R) \$30 (C)
<u>GWS 9</u>	<p><b>Reliability of Supply</b></p> <p>This refers to the provision of a minimum quantity of running water over a 30 day period (a billing period).</p>	Customers shall be supplied with at least 8m <sup>3</sup> of running water over a 30 day period (a billing period).	Refund of the standard domestic 30 day minimum charge. (R) Refund of double the standard domestic 30 day minimum charge. (C)

## 3.2 Guaranteed Standards of Service Definitions and Specific Exemptions

### 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 of 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' 30 year average rainfall is 1250mm. CIMH is the authority in Barbados with respect to making a determination as to whether drought conditions exists. 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

**Installation of Service in a Zone other than a Zone 1 Area** - No more than fourteen (14) days in the instance of residential customers, and ten (10) days for commercial customers, shall elapse between the application, payment and installation for a standard connection in a Zone other than a Zone 1 area.

**Installation of Service in a Zone 1 Area** - Investigations shall be completed within fourteen (14) days for residential customers and ten (10) days for commercial customers, after the receipt of an application for service in a Zone 1 area.

After completion of the investigation and approval in a Zone 1 area, installations shall be completed within fourteen (14) days for residential customers and ten (10) days for commercial 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 etc.

**GWS 2 - Issuance of First Bill**

Definition

No more than thirty (30) 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**

Definition

The BWA shall acknowledge a customer's complaint about billings or other Standards of Service issues within seven (7) days of receipt of the complaint. After acknowledging the complaint, the BWA has an additional twenty (20) days in which to investigate and provide findings.

If the BWA fails to provide an acknowledgement in the specified time, a credit of \$15 for each affected residential 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 to 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 Commission deems the query 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 (Existing Service)**

#### Definition

The BWA shall install a meter within forty-five (45) days of a customer's request, i.e., customers with fixed rates requesting a meter. Failure to meet the target 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.

### **GWS 6 - Repair/Replacement of Faulty Meter**

#### Definition

After the report of a faulty meter, the BWA has fifteen (15) 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 thirty (30) 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 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 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. If the BWA fails to connect the service within twenty-four (24) hours of receipt of payment, each affected residential customer will be 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.

**GWS 8 - Scheduling of Field Appointments**

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 the passage of a hurricane, storm or other natural event.

## **GWS 9 – Reliability of Supply**

### 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 8m<sup>3</sup> of running water over a thirty (30) day period (a billing 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 of 1982.

### Specific Exemptions:

- Subject to Regulation 12(1) of the BWA Regulations of 1982;
- 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.

### **3.3 Compensatory Payments Claim Procedure**

The consensus was a preference for customers 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 claims 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 fault report or 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.

### **3.4 Overall Standards of Service for the BWA**

The Commission has made the following determination on the Overall Standards of Service for the BWA. The Standards of Service are presented in the table in summarised form, followed by a more detailed explanation of definitions and applicable exemptions.

**Table 2 - Overall Standards of Service**

STANDARD	SERVICE CATEGORY	TARGET
<u><b>OWS 1</b></u>	<p><b>Meter Reading</b></p> <p>This refers to the time frame between each meter reading.</p>	100% of accessible meters to be read monthly.
<u><b>OWS 2</b></u>	<p><b>Investigation of Water Quality</b></p> <p>This refers to the time frame in which the BWA will investigate and submit findings to the Commission when there is a complaint relating to water quality.</p>	In 95% of instances, preliminary reports are to be submitted within 72 hours and comprehensive reports are to be submitted within 2 weeks of receipt of complaint.
<u><b>OWS 3</b></u>	<p><b>Reinstatement of Service after Electrical Outages by Supplier of Electricity</b></p> <p>This refers to the time frame in which service will be restored after occurrence of an electrical outage. Customers in the affected areas shall be kept informed of the progress.</p>	In 95% of instances, the water supply shall be reinstated within 8 hours of restoration of electrical supply.
<u><b>OWS 4</b></u>	<p><b>Reinstatement of Service after In-House Fault (Fault residing within the control of BWA)</b></p> <p>This refers to the time frame in which service will be 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>	In 95% of instances the supply shall be reinstated within 8 hours of occurrence of fault.
<u><b>OWS 5</b></u>	<p><b>Reinstatement of Property</b></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 pipe repairs, or the installation of new services.</p>	<p>In 95% of instances temporary reinstatement shall occur at the end of work each day.</p> <p>In 95% of instances permanent reinstatement shall occur within 20 working days of completion of works.</p>
<u><b>OWS 6</b></u>	<p><b>Minimum/Maximum Water Pressure</b></p> <p>This refers to the water pressure that must be maintained.</p>	A water pressure of between 25 to 80 pounds per square inch (psi) shall be maintained at all times.
<u><b>OWS 7</b></u>	<p><b>Notify Public of Intention to Interrupt Supply</b></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>	In 95% of instances customers are to be notified not less than 48 hours before scheduled service interruption.

STANDARD	SERVICE CATEGORY	TARGET
<u>OWS 8</u>	<p><b>Correction of Sewerage Problem</b></p> <p>This refers to the time in which the BWA has to correct sewerage problems after being informed. <b>(The problems referred to include blockages of sewer lines, overflows and breakage of sewer lines, etc.)</b></p>	95% of all sewerage problems shall be corrected within 48 hours of notification of the sewerage problem.
<u>OWS 9</u>	<p><b>Wastewater Effluent Quality</b></p> <p>This refers to the quality of wastewater effluent being discharged from the BWA's sewerage treatment plants.</p>	95% of samples shall conform to the Environmental Protection Department's (EPD's) wastewater discharge standards.
<u>OWS 10</u>	<p><b>Potable Water Quality</b></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.
<u>OWS 11</u>	<p><b>Repair of Ruptured Pipes</b></p> <p>This refers to the time taken, after the report of a ruptured pipe, for the BWA to effect repairs (<b>service lines</b>).</p> <p><b>(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.)</b></p>	90% of ruptured pipes shall be repaired within 5 days of notification of rupture.
<u>OWS 12</u>	<p><b>Repair of Ruptured Mains</b></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 24 hours of notification of rupture.

### 3.5 Overall 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 exclude 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. Any other reference to days speaks to calendar days.

## **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; and
- Where access is denied due to overgrown bush, obstructing structures, locked gates, and/or aggressive animals.

## **OWS 2 - Investigation of Water Quality**

### 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.

## **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; 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; 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 sewerage 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 4 and 5 in Appendix 2).

### 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 (see Table 3 in Appendix 1).

## **OWS 11 - Repair of Ruptured Pipes**

### 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 (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; 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.

## SECTION 4      GENERAL EXEMPTIONS

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### 4.0      Force Majeure

The Commission is of the view that there are situations where failure to meet Guaranteed Standards of Service should not require compensatory payments from the BWA. Consequently, the Standards of Service are 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 (2009) defines *Force Majeure*<sup>3</sup> 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 force majeure conditions, under which exemptions from the Standards of Service are granted, are as follows:

- (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 or any other natural disaster of overwhelming proportions;
- (d) Riots;
- (e) Civil commotion;
- (f) Acts or threats of terrorism;
- (g) Insurrections;
- (h) Epidemics;
- (i) Trade restrictions;
- (j) Inability to obtain any requisite Government permits; and

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<sup>3</sup> Bryan 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.

#### **4.1 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 BWA'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.

Situations in 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 wilful 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 5 REASONS FOR DECISION

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In the initial development of the Standards of Service, the Commission took into consideration issues that were brought to its attention through customer complaints and queries. The Commission then researched Standards of Service best practices within the industry. Jurisdictions considered included Trinidad and Tobago, Jamaica, the United Kingdom and the Emirate of Abu Dhabi.

Additionally, the Commission held discussions with the BWA. This was critical, as the development of the Standards of Service must be juxtaposed with the BWA's ability to achieve them. It was essential for the Commission to obtain knowledge of the BWA's operational and technical capability, as well as its challenges, so that realistic targets could be established. The EPD was also consulted, as it represents the regulatory arm of the Ministry of Environment which has some responsibility for water resources. The Standards of Service and associated targets are intended to establish service benchmarks for the BWA and thus facilitate improved service delivery. These Standards of Service are not expected to be onerous, but are designed to be stringent enough to precipitate improved service.

Whilst consideration was given to customers' valuation of the BWA's service quality and the minimum safety requirements during the development of the Standards of Service, this was tempered by the accompanying cost of achieving such standards. Furthermore, the financial position of the BWA was considered, as the levying of fines may impose a burden that the BWA may be unable to sustain. In addition, while the prevailing opinion may support the implementation of stringent standards, the BWA's status as a newly regulated entity, and more specifically its state of readiness for regulation, is a mitigating factor that must be considered.

After an analytical review of all the available information, the Commission proceeded to design the Standards. In deriving the compensation for failure to attain the specified targets, the Commission was guided by the compensation currently levied on the other regulated utilities, what obtains in other jurisdictions and an assessment of what appears reasonable.



In the section below, the Commission has provided the rationale for the addition and deletion of some of the proposed Guaranteed Standards of Service, as well as the modification of the timeline for some of the proposed Overall Standards of Service as given in the antecedent Consultation Paper.

### **GSW 9 - Reliability of Supply**

There was consensus among stakeholders that a standard should be developed to address the reliability of supply. Customers opined that it was unreasonable to be required to pay for a service not received. It was suggested that the development of such a standard would encourage the BWA to ensure that the requisite resources were available to facilitate a continuous water supply.

### **Commission's Analysis**

Barbados was listed as the 15<sup>th</sup> most water scarce country in the world in 2013<sup>4</sup>. An expanding middle class, in conjunction with a highly developed tourist industry, has led to an increasing demand for water. Unfortunately, sustained periods of drought in recent times have contributed to a declining water supply. Such deficits, when combined with infrastructural challenges, leads to chronic water shortages in some areas. Consequently, some customers have experienced prolonged outages.

In the UK, if the water service has been interrupted and not restored within a specific period of time, the customer receives compensation. In Trinidad and Tobago, there are water schedules and customers are expected to receive water for some part of the day. If the customer does not receive an adequate supply of water during the prescribed period, they are entitled to compensation. The insertion of a standard of this nature is therefore in keeping with other jurisdictions and provides a measure of relief to customers who experience chronic water outages.

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<sup>4</sup> Pan American Health Organization and World Health Organization. 2013. Health in the Americas – Barbados. Last Accessed August 23, 2013. Available from: [http://www.paho.org/saludenlasamericas/index.php?id=23&option=com\\_content&Itemid=&lang=en](http://www.paho.org/saludenlasamericas/index.php?id=23&option=com_content&Itemid=&lang=en)

The provision of a water service is two-fold i.e. access (the infrastructure) and the supply of the actual product (running water). As such, when a customer enters a contract for water service(s), both components are reasonably expected. The Commission considers that it is unjustifiable for customers to be required to pay for a service they have not received over an extended period, particularly when the lack of service is not solely attributable to the presence of drought conditions and /or other conditions deemed to be outside the control of the BWA as stated in Section 4 of this document or the stipulations under section 12(1) the BWA Regulations of 1982. A standard was therefore added to the Guaranteed Standards of Service to address this issue.

As a consequence, where individual customers receive less than 8 m<sup>3</sup> of water over thirty (30) consecutive days, and the lack of service is not solely attributable to the presence of drought conditions or other conditions deemed to be outside the control of the BWA as stated in Section 4 of this document or the stipulations under section 12 (1) of the BWA Regulations 1982, the Commission is of the opinion that the customer should be entitled to compensation. This compensation should be in the form of a refund of the standard domestic thirty (30) day minimum charge. However, during periods of temporary water outages, the BWA will not be required to offer compensation to customers.

#### **GWS 5 - Notification of Account Status (Deleted Guaranteed Standard of Service)**

Customers were of the view that this proposed Standard was not necessary, since the request for this service would not be significant. Based on the feedback from customers, the Commission made the decision to eliminate this proposed Standard as the service is rarely used.

#### **OWS 3 - Reinstatement of Service after Electrical Outages by Supplier of Electricity (Time frame modified)**

After further research, the Commission considered that the original targeted time proposed for this Standard was too long. At present, according to the BWA, pumps resume service immediately once electricity has been restored and, if the service area has a reservoir, the impact is minimal. However, if the pumps have to be reset or are damaged, it may take two (2) to three (3) hours for pumping to resume and one (1) to two (2) hours if there is a reservoir.

In light of this information, twenty-four (24) hours would be disproportionately long, relative to the BWA's average service recommencement time frame history. Given this, the target time was reduced.

Therefore, the Commission determined that after electrical service has been restored, water supply should be returned within eight (8) hours. Extenuating circumstances will be captured under the force majeure conditions.

#### **OWS 4 - Reinstatement of Service after In-House Fault (Fault residing within the control of BWA) (Time frame modified)**

A similar argument is advanced for the restoration of water in a speedier time, once the in-house fault has been corrected. As soon as the problem has been rectified, based on the research, it should take no more than two (2) hours for the water supply to be restored. The Commission determined that the target time should be reduced to eight (8) hours, since this is within the control of the BWA. Extenuating circumstances will be captured under the force majeure conditions.

#### **OWS 5 - Reinstatement of Property (Time frame modified)**

Customers expressed dissatisfaction with the proposed target time for the restoration of property. They suggested that the time periods should be shorter, especially in instances where it affects access to a residence or business. It was suggested that delayed reinstatement is a significant inconvenience, and in some instances, a hazard to customers and the general public. For this reason, it was suggested that the BWA should be required to remove materials and temporarily reinstate the affected properties.

After taking customers' comments into consideration, the Commission determined that it was prudent to amend the Standard to require that, in ninety-five percent (95%) of instances, the BWA should temporarily reinstate the property at the end of work each day. However, the permanent reinstatement target of twenty (20) working days remains applicable.

**6.0      Monitoring and Enforcement of Standards**

The performance of the BWA must be monitored over time to ensure that there is adherence to the Standards of Service. The BWA will therefore be required to submit to the Commission quarterly reports on its performance as it relates to the Standards of Service.

These quarterly regulatory reports shall contain information for each month of the quarter, including:

- The number of breaches under each Guaranteed Standard of Service category and as a percentage of compliance;
- The actual, average time taken to respond to and /or rectify issues referred to under each Guaranteed Standard of Service category;
- The level of compliance, as a percentage, of each Overall Standard of Service category;
- The number of eligible customer claims, and the number of customers actually receiving compensation;
- The number of inaccessible meters; and
- Details of any extenuating circumstances that would have prevented the achievement of the targets for the Overall Standards of Service.

The BWA will also be required to submit annual reports inclusive of the above information, and additionally:

- The number of customers eligible for compensation during the financial year under consideration;
- The total amount of eligible compensation ;
- The number of customers actually receiving compensation; and
- The amount of compensation actually paid.

Compliance will be evaluated on a monthly basis.

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

Overall Standard is not met, the BWA shall provide an explanation to the Commission. Where the BWA continually fails to meet an Overall Standard, to the point where service is severely hampered, 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.

The Commission further issues an Order pursuant to Section 38(c) (ii) of the URA. This Order is attached to this SOS Decision.

### **6.1 Public Disclosure of Information**

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

### **6.2 Public Education**

The BWA shall make available to its customers a detailed list of the Guaranteed and Overall Standards of Service. This list shall include information on the service category, target times, the time frame for the submission of claims and compensatory payment, where applicable. The BWA's fault reporting process is to be made known to the public and the appropriate contact numbers included. The BWA shall also widely publicise the means via which compensation may be sought should there be a breach, and where customers can access the claim forms.

The Commission will seek to further educate members of the public as to their rights and responsibilities as they relate to these Standards of Service.

### **6.3 Implementation and Review**

The Standards of Service for the BWA as herein outlined will become effective on **January 1, 2018** and will be applicable for three (3) years. These Standards are subject to official Commission review every **three (3) years**, at which time amendments to the Standards, target times or compensatory payments may be made.

## APPENDIX 1

**Table 3 - Chemical Summary**

Guideline values for chemicals that are of health significance in drinking-water<sup>5</sup>

Chemical	Guideline Value	
	(mg/l)	µg/l
Acrylamide	0.0005 <sup>a</sup>	0.5 <sup>a</sup>
Alachlor	0.02 <sup>a</sup>	20 <sup>a</sup>
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 <sup>a</sup>	10 <sup>a</sup>
Benzo[ <i>a</i> ]pyrene	0.0007 <sup>a</sup>	0.7 <sup>a</sup>
Boron	2.4	2 400
Bromate	0.01 <sup>a</sup> (A, T)	10 <sup>a</sup> (A, T)
Bromodichloromethane	0.06 <sup>a</sup>	60 <sup>a</sup>
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 <sup>a</sup>	1 <sup>a</sup>
1,2-Dibromoethane,	0.0004 <sup>a</sup> (P)	0.4 <sup>a</sup> (P)
Dichloroacetate	0.05 <sup>a</sup> (D)	50 <sup>a</sup> (D)

<sup>5</sup> World Health Organization. (2011). Guidelines for Drinking-Water Quality. Fourth Edition.

Chemical	Guideline Value	
	(mg/l)	µg/l
Dichloroacetonitrile	0.02 (P)	20 (P)
1,2-Dichlorobenzene	1 (C)	1 000 (C)
1,4-Dichlorobenzene	0.3 (C)	300 (C)
1,2-Dichloroethane	0.03 <sup>a</sup>	30 <sup>a</sup>
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 <sup>a</sup>	20
Dichlorprop	0.1	100
Di(2-ethylhexyl)phthalate	0.008	8
Dimethoate	0.006	6
1,4-Dioxane,	0.05 <sup>a</sup>	50 <sup>a</sup>
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 <sup>e</sup>	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 <sub>3</sub> <sup>-</sup> )	50	50 000
Nitrilotriacetic acid (NTA)	0.2	200
Nitrite (as NO <sub>2</sub> <sup>-</sup> )	3	3 000
Pendimethalin	0.02	20
Pentachlorophenol	0.009 <sup>a</sup> (P)	9 <sup>a</sup> (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)

Chemical	Guideline Value	
	(mg/l)	µg/l
2,4,5-T	0.009	9
Terbutylazine	0.007	7
Tetrachloroethene	0.04	40
Toluene	0.7 (C)	700 (C)
Trichloroacetate	0.2	200
Trichloroethene	0.02 (P)	20 (P)
2,4,6-Trichlorophenol,	0.2 <sup>a</sup> (C)	200 <sup>a</sup> (C)
Trifluralin	0.02	20
Trihalomethanes		
Uranium	0.03(P)	30 (P)
Vinyl chloride	0.0003 <sup>a</sup>	0.3 <sup>a</sup>
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<sup>-5</sup> (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<sup>-4</sup> and 10<sup>-6</sup> 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 4 – Domestic Waste End of Pipe Standards<sup>6</sup>**

Parameter	End of Pipe Standard
Biochemical Oxygen Demand	Class 1 <sup>7</sup> - 30mg/l Class 2 <sup>8</sup> - 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

<sup>6</sup> 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.

<sup>7</sup> Class 1- Highly sensitive to impacts of domestic wastewater

<sup>8</sup> Class 2- Less sensitive to domestic wastewater

**Table 5 - Petroleum Hydrocarbons End of Pipe Standards for Class 1 Water.<sup>9</sup>**

<b>Parameter</b>	<b>End of Pipe Standard</b>
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

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<sup>9</sup> 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 29<sup>th</sup> day of May, 2017

*Original signed by*

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Jefferson Cumberbatch  
Chairman

*Original signed by*

.....

Philmore Alleyne  
Commissioner

*Original signed by*

.....

Donley Carrington  
Commissioner

*Original signed by*

.....

Kendrid Sargeant  
Commissioner

*Original signed by*

.....

Andrew Willoughby  
Commissioner