
Office of Utilities Regulation

Central Waste Water Treatment Company Limited (CWTC)

Rates for sewerage treatment services provided to the
National Water Commission

Determination Notice



OFFICE OF UTILITIES REGULATION

August 30, 2013

DOCUMENT TITLE AND APPROVAL PAGE

DOCUMENT NUMBER: Determination Notice Sewerage Rates Document No. 2013/WAS/003/DET.002

1. DOCUMENT TITLE: Determination Notice: Central Wastewater Treatment Company Limited (CWTC) Rates for sewage treatment services provided to the National Water Commission

2. PURPOSE OF DOCUMENT

This document contains the main decisions of the Office of Utilities Regulation (OUR) regarding the application by CWTC for rate review for the sewerage services it provides.

3. APPROVAL

This document is approved by the Office of Utilities Regulation and the decisions herein become effective **September 1, 2013**

On behalf of the Office:



Maurice Charvis
Director General

August 30, 2013

Acronyms and Abbreviations

CACU	-	Consumer Advisory Committee on Utilities
CPI	-	Consumer Price Index
CWTC	-	Central Wastewater Treatment Company Limited
FX	-	Foreign Exchange
Government	-	Government of Jamaica
KMA	-	Kingston Metropolitan Area
KSA	-	Kingston and St. Andrew Area
KWh	-	Kilowatt Hour
Licence	-	Central Wastewater Treatment Company Limited Sewerage Services Licence, 2006
NEPA	-	National Environmental Planning Agency
NHT	-	National Housing Trust
NWC	-	National Water Commission
OPEX	-	Operating Expenses
O&M	-	Operation and Maintenance
OUR/Office	-	Office of Utilities Regulation
PAM	-	Price Adjustment Mechanism
ROE	-	Return on Equity
UDC	-	Urban Development Corporation
WOMC	-	Wastewater Operation Management Company Limited
WTA	-	Wastewater Treatment Agreement
WW Flow	-	Wastewater Volumetric Flow

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Chapter 1

Executive Summary

Central Wastewater Treatment Company Limited (CWTC) is a special purpose company established for the implementation of Phase 1A of the Kingston Metropolitan Area (KMA) Wastewater Treatment Project. The facilities constructed by the company are intended to treat almost all of the wastewater generated in the Kingston and St. Andrew Area (KSA) as well as wastewater from Portmore in St. Catherine. CWTC was incorporated as a limited liability company under the laws of Jamaica. In 2010, Cabinet approved the transfer of shares from the Urban Development Corporation (UDC), Ministry of Water and Housing and National Housing Trust (NHT) to the National Water Commission (NWC). This resulted in the NWC becoming the majority shareholder of CWTC with 85.2% of the issued shares, and Ashtrom (Jamaica) Limited (Ashtrom) being the minority shareholder with 14.8%.

On February 20, 2013, CWTC applied to the Office of Utilities Regulation (Office/OUR) for an initial rate for sewerage services provided to the NWC (Tariff Application). Its audited financial statements and the operational budget/projections addressing activities over the 2008 to 2013 period were appended to the Tariff Application.

CWTC proposed a tariff that would recover both its operating costs and capital investments, a Price Adjustment Mechanism (PAM) based on the NWC PAM Factor and the establishment of a Sewerage (S) Factor account as outlined in Table 1 below.

Table1: Summary of proposed rates

	REQUESTS
Tariff yield on revenue	J\$2.4 billion
Volumetric Rate	J\$210.32 per M ³
PAM	Rate to be adjusted based on NWC PAM to manage foreign currency risk
S Factor	An account for NWC to lodge sewerage charges from areas connected to CWTC facility

Legal Framework

CWTC is a regulated utility pursuant to the Office of Utilities Regulation Act and operates under the Central Wastewater Treatment Company Limited Licence, 2006 issued by the Minister of Water based on the recommendation of the Office of Utilities Regulation (OUR) (the Licence). Schedule 3 of the Licence provides as follows:

“Initial Tariff

On the granting of this License the Licensee shall submit a proposal to the Office for the initial tariffs to be charged in respect of services.

Subsequent Tariff

At such intervals as the Licensee may determine but no more than once every two years, the Licensee may submit an application for a tariff review. The Application must be supported with data and information as the Office will determine.”

The Licence also sets out, among other things, the procedure for determining the rates that CWTC may charge NWC.

The procedure for the determination of rates is also reflected in the Wastewater Treatment Agreement dated September 22, 2005 (WTA) which governs the relationship between CWTC and NWC. NWC is therefore obliged to accept the rates prescribed by the OUR and will seek to pass on the costs to its consumers in its own tariffs which are also set by the OUR. CWTC and its activities are also

subject to regulation by other relevant government agencies such as the National Environment and Planning Agency (NEPA) and the Ministry of Health.

In setting CWTC's tariff, the OUR is also obliged to consider Section 3.3.2.5 of the Water Sector Policy (1999) which provides as follows:

"The OUR will be responsible for setting tariffs at a level which allows the service providers to fully recover efficient cost levels (including both capital and operating costs). The service providers will be responsible for increasing the efficiency of their operations, thus reducing costs to the lowest efficient levels.

Where exceptional circumstances dictate the need for additional funds for systems improvements or rehabilitation, the OUR will take this into account in setting tariffs."

Tariff Methodology

The mechanism for calculating the rates to be paid by NWC to CWTC for treatment of wastewater delivered is set out in Schedule 6 of the WTA and reflected in Schedule 3 of the Licence.

The basic approach to establishing the rates involves the following:

1. Establishment of a test year which shall be the latest twelve (12) months for which there are audited accounts.
2. Adjustment of the results of the test year to reflect normally expected operating conditions, revenues and costs that would come into effect within the next twelve (12) months.
3. Determination of a Rate Base to reflect net investments with adjustments as appropriate.
4. Determination of the Revenue Requirement as the sum of:
 - a. Operating costs;
 - b. Depreciation;
 - c. Taxes; and
 - d. Return on investment allowed.
5. Determination of Fixed Price Components and Variable Price Components based on the Revenue Requirement and related assumptions.

6. Determination of Price Indexation Parameters.

Steps 5 and 6 are not included in the WTA or the Licence but are additional steps applied by the OUR in order to ensure fair pricing for the wastewater treatment services to be provided to NWC.

Test Year

The Test Year is defined in the WTA and the Licence as the latest twelve months of operation for which there are audited accounts. CWTC's most recent available annual audited accounts is for calendar year 2010. The Test Year is therefore 2010. The Test Year data is adjusted for known and measurable costs and parameters based on data from approved CWTC Management Accounts submitted for the periods ending March 31, 2011, 2012 and 2013.

Summary of Office Tariff Determination

The Summary of the CWTC Tariff as determined by the Office is set out in Table 2 below:

Table 2: Summary of Base Tariff Determination

ITEM	CWTC PROPOSED	OUR DETERMINED	REMARKS
Asset Base (J\$)	4,250,488,803	3,721,529,804	CWTC assets + working capital known and measurable (2013)
WACC (Pre -Tax)	11.2494%	11.2494%	The OUR accepts CWTC proposition that its WACC is similar to the cost of debt which is currently 11.2494%.
OPEX- before Int (J\$)	433,745,504	273,171,757	Bad debt is excluded. Bank charges is also excluded from OPEX but accounted for in Finance costs. Wastewater Operation and Management Company Limited (WOMC) costs and Fees included.
Finance Cost (J\$)	359,704,990	507,325,514	Finance cost represents CWTC's interest on the USD loan given FX movements since the tariff application. The WOMC interest claim for interest accrued on the operating fees outstanding allowed but adjusted to reflect the alternative cost of borrowing had management taken the more prudent decision to finance payment rather than incurring penalty interest charges.
Depreciation (J\$)	180,602,829	180,602,829	Allowed
ROI (J\$)	482,931,688	7,042,102	Current equity base and OUR determined Return on Equity (ROE).
Taxes (J\$)	206,970,723	3,350,029	Calculated on the ROE

Working Capital Deficit (J\$)	769,900,648	-	Disallowed. The applicable working capital is already accounted for in Asset Base
Base Revenue Requirement- BRR (J\$)	2,433,856,382	971,492,232	As determined
WW Flow Volume (M3)	11,572,433	13,444,470	Reflecting actual 2012 volume consistent with 'Known and Measurable'
Average Tariff (J\$/M3)	210.32	72.26	

DETERMINATION 1

Based on the adjustments made to the CWTC proposed Capital and Operating Costs and volumetric flow, the OUR has determined the following:

- Waste Water Volumetric Flow of 13,444,470M³
- Base Revenue Requirement of J\$971.5 million

The Base Tariff structure is designed to allow for efficient and fair rates as follows:

- A Fixed Tariff of J\$29.4 million per month or J\$392.23/ M³ per month of net available capacity (75,000M³/d); and
- A Variable (volumetric) tariff of J\$46.00/ M³

The result of the rates specified above is an average tariff of J\$72.26/ M³. The overall average tariff is realized when the actual fixed charge and volumetric rate are applied.

Details of the tariffs and appropriate indexations as determined and approved by the Office are outlined in Tables 3 and 4 below.

Table 3: Fixed Component of Base Tariff

	Unit	WOMC	CWTC	TOTAL	Index	Base Date	Base Index Value	Frequency
Fixed O&M payments to O&M Contractor	\$/Year	90,640,968	-					
Other fixed O&M Cost - Mgt of CWTC including, depreciation, ROE etc.	\$/Year	-	262,367,158					
Total Fixed O&M Cost	\$/Year	90,640,968	262,367,158	353,008,126				
Fixed O&M Cost	\$/Month	7,553,414	21,863,930	29,417,344				
Plant Capacity	M ³ (Cubic Metre)	75,000	75,000	75,000	FX		99.67	Monthly
Fixed O&M Price	\$/M ³ of net available capacity per month	100.71	291.52	392.23	US CPI	Feb 2013	232.17	Annually

US CPI = Annual Average All Urban Consumer Price Index (1984 =100), Published by the Bureau of Labor Statistic

Table 4: Variable Component of Base Tariff

Parameter	Unit	CWTC	Index	Base Date	Base Index Value	Frequency
Volume of wastewater assumed in calculation of variable O&M costs	M ³ /day	36,834				
Volume of wastewater assumed in calculation of variable O&M costs	m ³ /year	13,444,470				
Variable O&M Cost - excluding electricity	\$	565,653,616				
Electricity Cost	\$	52,830,490				
Total variable O&M cost	\$	618,484,106				
Variable Rate	\$/m³	46.00	PAM	Aug-13	PAM	Monthly

DETERMINATION 2

A monthly PAM shall be applied to the variable rates charged by CWTC. The PAM is an indexation mechanism that is applied to the base rates and charges for water and sewerage services to preserve the real revenue of a company. The PAM captures the movement of the consumer price index, foreign exchange (J\$/US\$) and kilowatt hour (kWh) charge.

The Office has determined that a PAM equivalent to that of the NWC should be applied to the base rate of CWTC one month after it is applied by the NWC.

DETERMINATION 3

The S-factor account proposed by CWTC is not a matter to be determined by the OUR. The issue relates to the management of CWTC receivables and is properly a matter for its management. As such, the OUR expects this to be addressed within the contractual arrangement between NWC and CWTC.

DETERMINATION 4

The issues relating to environmental, service and guaranteed standards are special conditions in the Licence which CWTC is required to comply with. Whereas the environmental standards are set by NEPA/ NRCA, both the service and guaranteed standards are reinforced by the OUR.

Chapter 2: Introduction

2.1 Background

CWTC was incorporated as a limited liability company under the laws of Jamaica. The company was established out of the recognition that sewage was inadequately treated in the KMA. CWTC as initially established had four major shareholders: UDC, NHT, Ashtrom, and NWC.

2.1.1 Key aspects of the major project agreements are as follows:

1. *The WTA*: This agreement dated September 22, 2005 was made between the NWC and CWTC. In it, NWC agrees to supply wastewater to CWTC through the interconnection point at Nanse Pen, Hunts Bay and Greenwich, and CWTC agrees to receive and treat all such wastewater up to the contract capacity. The agreement further outlines, testing procedures as well as information pertaining to compensation, payment and billing as well as warranties and covenants of the parties.
2. *O&M Agreement*: This agreement dated December 2004 was signed between WOMC owned by Ashtrom, and CWTC. It contains the specific details in regards to WOMC and its scope of work. This agreement ensures that Ashtrom, as the developer, through WOMC continues to bear the technical risks associated with the project from construction through operation. Ashtrom is therefore responsible for ensuring that the plant continues to meet NEPA standards over a 20 year period.
3. *Shareholders Agreement*: Equity for the project was provided primarily by UDC, NHT, NWC and Ashtrom. In addition, shares were issued to the Minister of Housing as payment for lands at Soapberry. The agreement also outlines the initial equity injection as well as the subsequent equity injection of the shareholders.

2.1.2 A part of the government's policy mandate is to improve access to potable water and sewerage services. In achieving these goals, support has been drawn from the private sector for the delivery of sanitation services where the public supply is for whatever reason, insufficient. The Water Sector Policy (1999) was therefore drafted as a framework for governing the

provision of these services & reinforces support for the private sector in boosting water sector performance.

2.1.3 Under the Licence and the Office of Utilities Regulation Act, CWTC is permitted to apply to the OUR for rate determination. CWTC's Licence prescribes that the period between applications must be at least two years. CWTC submitted an application on February 20, 2013 for the determination of rates to be charged to NWC for sewerage services.

2.1.4 The regulatory framework under which the OUR conducts a tariff determination speaks to OUR's responsibility for setting tariffs at a level which would allow CWTC to fully recover reasonable costs (including and operating costs). It also provides that CWTC will be responsible for increasing efficiency of operations and where exceptional circumstances exist for the provisioning of additional funds, the OUR in setting the tariff would consider those factors.

2.1.5 The applicable legal and regulatory principles stipulate that wastewater tariff perform two functions:

1. Tariffs are the main means by which the utility funds the on-going costs of providing wastewater services. They also provide for the recovery of capital to support renewal and expansion of sewerage systems and improve quality of service.
2. Tariffs act as a signal to consumers as to the costs of providing the services, and allows them to make informed decisions about whether the use of the services will generate benefits in excess of costs thereby encouraging efficiency.

In ensuring that the tariff performs the above functions the OUR is obliged to apply what are designated the 'known' and 'measurable' principles. By known and measurable it is meant that the revenue, cost and quantities that are taken into account must be quantifiable based on known changes in circumstances and reasonable projections for the tariff period.

Chapter 3: CWTC Proposal

3.1 Objectives of the Tariff Proposal

CWTC applied to the OUR requesting an initial tariff to be effected during 2013/14. The company's tariff proposal was made against the background of several stipulated objectives that the Licensee is seeking to achieve from the OUR's determination (see summary of proposals in Table 1 above):

- To facilitate operational and maintenance cost recovery. According to the application, CWTC benefited from reduced operational cost over the 2009-2011 periods. However, the company indicated that there is exposure to foreign exchange losses as a risk to profitability due to the devaluation of the dollar.
- To enable the repayment of the current loan principal of US\$37 million to National Commercial Bank Jamaica Limited (NCB). CWTC's stated that the loan attracts an interest rate of 11.2494%, which added to principal, must be repaid by 2018.
- CWTC proposed that the rate of \$210.32 per M³ at the current applicable exchange rate of J\$94: US\$1 be adjusted in accordance with NWC PAM factor to facilitate management of foreign currency risk.
- CWTC requested the establishment of a Sewerage (S) Factor account so that the NWC can lodge sewerage charges so as to enable proper management of CWTC receivables and support financial viability.

The costs provided by CWTC in the Tariff Application for the test year, represent the basis of the company's proposal.

3.2 Operating Costs

The operating costs proposed by CWTC includes administrative cost, finance cost, foreign exchange gain/ loss, adjustment to interim revenue rates and provision for doubtful debts. The company proposed that the total operating cost (including depreciation) for the test year is \$935.7 million (see Table 5 below).

Table 5: List of Operating Costs

Operating costs	2010 (J\$)
Admin costs	308,174,678
Bad debts	125,570,826
Foreign exchange (gain)/ loss	-38,164,871
Finance costs	359,519,610
Depreciation	180,602,829
Total less depreciation	755,100,243
Total + depreciation	935,703,072

3.2.1 **Administrative Costs**

CWTC proposed administrative costs which included salaries and related costs, director's remuneration, professional fees, plant operating costs, printing and stationery, audit and accounting fees, insurance, miscellaneous expenses, secretarial fees, telephone expense and postage and carrier services. Together these totalled \$308.2 million.

3.2.2 **Finance costs**

The finance costs proposed included all interest related expenses for loan and bank charges. These costs amounted to \$359.7 million minus finance income of \$0.185 million from short term deposits and cash from banks. The net finance cost therefore totalled \$359.5 million.

3.2.3 Foreign exchange gain/ loss on US\$ loan

CWTC indicated foreign exchange gain of \$38.2 million on its loan with the NCB which the company attributed to the change in the value of the Jamaican dollar.

3.2.4 Provision for doubtful debts

CWTC presented a provision for bad debts totalling \$125.6 million for the test year. This represented the net of the actual 2010 provision and the change in provision based on the billing amounts outstanding after the tariff granted to NWC in 2008.

3.3 Capital Cost

Return on Investment

CWTC posits that the return on investment is derived based on the required rate of return and total investments base (rate base) that enables the Licensee to earn a reasonable return on their investment sufficient to provide for the requirements of the consumers and acquire new investments at competitive costs.

3.4 Public Consultation

As is the practice, the CWTC tariff application has been published on the OUR's website to afford members of the public the opportunity to comment. Additionally, as NWC is to date, CWTC's only direct customer and rates paid by the company will be a direct pass through to its customers, the NWC was specifically invited to provide comments. No formal comments have been received from the NWC but the Consumer Advisory Committee on Utilities (CACU) has provided the Office with comments on the application. These are summarised below.

CACU Comments

The CACU made the following observations.

1. CACU pointed out that CWTC is a fixed-cost operation and is concerned that the company has not made any additional investments since initial construction;
2. CACU is concerned that \$770 million of the requested annual increase in revenues is intended to cover working capital deficit from previous periods and as such it does not believe that rate-paying consumers should be called upon to fund the company's working capital deficits;
3. CACU found a lack of information about the company's performance in meeting quality of service standards with respect to clearance of blockages and odour or of its adherence to environmental standards.

Chapter 4: Office Evaluation of the Tariff Application

4.1 Introduction

The Office reviewed the Tariff Application with a view to making a determination on the specific tariff requests. In doing so, the framework governing this process requires the balancing of CWTC's as well as consumers' interests such as, full recovery of cost for financial viability, a rate structure which allows for a reasonable return on investment, quality customer service and fair consumer pricing.

The Licence provides that the Tariff Application be evaluated using Revenue Requirement which gives the Licensee the opportunity to recover cost of service in the most efficient way possible. The Licence specifies the formula for determining the Revenue Requirement as follows:

$$\text{Revenue Requirement} = \text{Operating costs} + \text{depreciation} + \text{taxes} \\ + \text{return on investment.}$$

4.2 Operating Costs

In making a determination on operating cost, the Office is guided by the principle that operating cost should reflect the known, measurable and prudent cost of providing acceptable quality of service to existing and potential customers. CWTC's operating costs are assessed using the year ending March 31, 2010 (the last year for which audited accounts were presented) as the test year. Consistent with the application of the 'known' and 'measurable' principles, the results are adjusted where necessary to reflect normal operational conditions on the basis of information provided by the company. Thus adjustments are made to revenues and costs as are known and measurable with reasonable accuracy at the time of filing, and which will become effective within a year of the time of filing. In addition, any changes recommended by the company's independent auditor based on accounting principles are also considered.

4.2.1 Operating Expenses

CWTC indicated that the operating expenses for the test year totalled \$935.8 million and the company realised profits of \$74.2 million only after a grant from the Government of \$169.9 million. Over the 2009 to 2011 financial periods the company incurred accumulated losses of \$485.9 million due mainly to bad debts and foreign exchange losses from currency devaluation.

The Office made adjustments to the proposed operating costs as outlined in Table 6 below. In arriving at these costs, the Office considered that operating expenses should reflect the reasonable cost of providing the end products at an appropriate quality of service. The operating expenses applied have therefore been determined to be the most efficient and prudent known and measurable cost based on the information provided in the Tariff Application.

Expenses that have been incurred in the past and which have no bearing on the provision of current services should not be the responsibility of current consumers. Also, revenue foregone or not collected due to the actions of past management should not become a burden on current rate payers. Any such outstanding liabilities should be addressed by the shareholders.

4.2.2 Administrative and Plant Operating Costs

CWTC proposed administrative costs totalling \$308.2 million. Administrative costs include salaries and related costs, director's remuneration, professional fees, plant operating costs, printing and stationery, audit and accounting fees, insurance, miscellaneous expenses, secretarial fees, telephone expense and postage and carrier services.

Based on the costs faced by CWTC, the Office has determined that the total administrative cost for the company is \$273.2 million. This was calculated by calibrating the administrative cost components presented in the Audited Financial Statements and adjusting the operations budget proposal presented by CWTC for 2013, given supporting documents provided for administrative and related expenses.

Plant Operating Cost

The main adjustment to the proposed administrative costs is that of plant and operating costs (See extracts in Table 6 below). These included salaries and wages which were adjusted upwards from \$28.2 million to \$37.9 million for known and measureable costs from the salaries and wages register. Security costs was reduced from \$16.5 million to J\$12.2 million based on supporting documents provided by CWTC. The adjustment was made using the number of armed and unarmed guards indicated, and applying the proposed rates per hour paid for twelve (12) hour work day for a five day week.

The amount of J\$16.4 million that was proposed by CWTC for company overhead representing 10% of plant operating cost was disallowed. According to WOMC the cost component is required for the operation of the company including input and support from their Kingston head office and the Ashtrom Group's head office in Israel. The cost of specific activities undertaken by WOMC relating to the provision of the service should have been submitted. A provision that varies with the level of other costs does not meet the standard of known and measurable. This cost of J\$16.4 million was therefore disallowed.

The electricity cost was increased from the \$47.5 million proposed to \$52.8 million as determined by the Office based on actual electricity bills submitted by CWTC. The total plant and operating cost applied therefore amounted to \$198.5 million, down from \$204 million proposed.

Table 6: Extracts of Adjusted Plant and Operating Costs

Extracts:	CWTC Recommended Budget Dated 12/24/12 (J\$)	OUR Determination (J\$)
Adjustments to Plant Operating Cost		
Salary/ wages	28,154,155	37,988,832
Security	16,500,000	12,168,000
Electricity	47,520,000	52,830,490
Company Overhead	16,363,636	-

Total Administrative Cost

The total administrative and operating costs of \$273.2 million determined thus reflect the known and measurable administrative expenses CWTC is likely to face over the tariff period. This includes \$2.4 million approved for professional fees as an average of the costs presented in the Audited Financial Statement for 2010 and Management Accounts for 2011 to 2013. In addition, the total cost includes \$37.1 million approved for insurance, up from the \$16.3 million proposed (see Table 7).

Table 7: Determined Administrative Cost

Expenses	CWTC Proposed (\$)	OUR Determined based on Known and Measurable Costs
	2013	2013
Salaries	20,106,121	20,106,121
Lease	2,655,927	2,655,927
Auditing Fees	600,000	600,000
Professional Fees	7,501,157	2,440,396
Plant Operating Cost-WOMC	204,000,000	198,449,531
Printing Stationary	96,000	96,000
Insurance	16,339,550	37,141,458
Misc Expenses	9,404,715	9,404,715
Secretarial Fees	1,672,209	1,672,209
Telephone Expense	180,000	180,000
Regulatory Fees		375,000
Postage and Carrier Fees	50,400	50,400
	262,606,080	273,171,757

*See Appendix for detailed breakdown of the determined plant operating cost

4.2.3 Finance

The finance cost for CWTC includes interest related expenses on the loan at amortized cost and bank charges. CWTC submitted total finance cost for the test year of \$359.5 million.

To determine a reasonable measure of finance cost for the tariff period, reference was made to the Audited Financial Statements (prior to and including the test year) and Management Accounts for 2011 to 2013. These were used to guide the assessment of known and measurable cost based on the exchange rate and interest payments required on the loan with adjustments to reflect the depreciation of the Jamaican dollar since February 2013.

Finance cost represents CWTC's interest (of 11.2494%) on the loan of US\$37 million given FX movements. The bank charge represented in the Management Account for 2013 was accepted. CWTC also included in its Management Accounts for 2012 and 2013 amounts of \$146.9 million and \$269.5 million respectively representing interest claims by WOMC for interest accrued on outstanding operating fees. The Office has after careful examination of the submissions from CWTC allowed the inclusion of claims for interest by WOMC but has adjusted the figure to \$95.7 million.

While the Operating and Maintenance Agreement (OMA) between CWTC and WOMC clearly provides for and denotes the instances in which penalty chargers apply this does not absolve CWTC from operating prudently and seeking to minimise the incidence of such charges. The Office has reasoned that CWTC has a significant lower cost of borrowing that the rates payable to WOMC for advances. In the circumstances the prudent course would have been to borrow to finance operating expenses as against advances from WOMC. The Office has therefore computed the interest charges that CWTC would have incurred had it opted to borrow from its banker.

This has been computed as \$168 million proposed as WOMC's interest claim in the 2013 Management Account divided by the bankers prime interest rate (17.75%) plus 2% multiplied by the CWTC's borrowing rate of 11.2494%. For future consideration, the Office notes that the WTA between CWTC and NWC also provides for interest rate penalty on arrears. The Office expects that CWTC will seek to exercise this option to encourage prompt settlement of receivables.

The Office has determined that a reasonable measure of CWTC's finance cost is \$507.3 Million as set out in Table 8 below.

Table 8: Determined Finance Cost

Finance Cost	Proposed: (J\$)	OUR Determined 2013 (J\$)
Interest cost	355,502,713	411,607,671
WOMC interest claim	168,026,730	95,706,324
Bank charges	4,202,277	11,519
Total cost	527,731,720	507,325,514

4.2.4 Foreign exchange gain/ loss on US\$ loan

Foreign exchange gains and losses are significant factors in the operation costs incurred by CWTC. According to CWTC, the company suffers from significant losses due to the devaluation of the Jamaican dollar. Over the 2009 to 2011 periods, CWTC incurred a net of \$403.33 million in foreign exchange losses stemming from the US dollar denominated loan on their books.

The company's exposure to foreign exchange loss is due to the loan financing of US\$37 million from NCB. The value of the Jamaican dollar against the United States dollar (USD) is therefore of major influence on CWTC's operations cost through foreign exchange gains/ losses. CWTC indicated that such losses are expected to escalate during 2012/13 due to currency devaluation.

The Office took note of the fact that there has been devaluation of the exchange rate since the Tariff Application was submitted and has made appropriate adjustments to the proposed exchange rates employed to compute interest payments due on the loan. In addition, the Office has approved a PAM mechanism which will facilitate the recovery of any foreign exchange losses likely to be incurred. In view of these adjustments, the Office has disallowed the inclusion of this item in the Revenue Requirement.

4.2.5 Provision for doubtful debts

CWTC indicated that the company suffers from significant cash flow problems because of the failure of NWC to settle invoices in a timely manner. Between March 2008 and 2011, NWC was slated to pay only 53% of the amount due. This represents a total of \$1.31 billion owing.

Table 9: Total Net Increase in Bad Debts

Receivables	Amount Billed based on Tariff (J\$)	Reduction in Billing (J\$)	Bad Debt Provision (J\$)	Increase/ (Reduction)
2010	840,000,000	170,000,000	670,000,000	
2011	840,000,000	30,000,000	810,000,000	140,000,000
2012	840,000,000	20,000,000	820,000,000	10,000,000
2013	700,000,000	15,000,000	685,000,000	(135,000,000)
Net Increase/ (Reduction) J\$				15,000,000

Based on the receivables produced by CWTC, the provision for the overall change in bad debts is expected increase to \$15 million (see Table 9 above). Allowing CWTC such a bad debt provision however, would amount to promoting inefficiency.

The situation whereby NWC is CWTC's majority owner and sole customer is perhaps to be blamed for the bill payment issue. Although the Office acknowledges the challenge in this respect, the consequential cash flow problem cannot be addressed by incorporating this cost in the tariff. The Office has therefore, determined that the bad debts cost is disallowed.

4.2.6 OUR Regulatory Fees and Taxes

According to the Licence, the Licensee is required to pay regulatory fees to the OUR each year. The fee structure for small water providers is based on the work programme to be undertaken each year. An amount of \$375,000 was applied to the tariff determination for CWTC. This amount was included in the OPEX cost component of the revenue requirement calculation.

The Licence also requires that taxes should be a component of the Revenue Requirement. This was calculated by applying the corporate tax rate to the approved return on equity of \$7.0 million. The taxes included in the Revenue Requirement therefore totalled \$3.4 million.

4.3 Asset Base

This is the value of the net investment in the licensee’s business. In defining “Rate Base”, Schedule 3 of the Licence inter alia stipulates that “...[t]he Rate Base shall be calculated based on the net sewerage system investment made by the Licensee at the end of the last financial year for which there are audited accounts at the time the rates are being set. The Rate Base shall include appropriate rate making investments to take into account known and measurable changes in the plant investment base and shall be increased or reduced by any positive or negative working capital requirement that may exist at such time.”

The asset base for CWTC was determined to be \$3.7 billion (see Table 10 below). The Office derived the asset base as the total non-current assets plus working capital (the difference between current assets and current liabilities) known and measurable as at March 31, 2013.

Table 10: Office Determined Asset Base

	Management Account 2013
Non-Current assets: Property, plant and equipment	2,515,324,568
Working Capital	1,206,205,236
Current Assets	2,063,711,636
Current Liabilities	(857,506,400)
Asset Base	3,721,529,804

4.4 Depreciation

Depreciation is provided for in CWTC's profit and loss statement to account for the recovery of capital given the diminution in the value of the assets through their use in production. The Office determines that depreciation based on the used and useful assets that have been invested by CWTC, is \$180.6 million. Since CWTC did not propose to make additional capital investments for the tariff period, the Office used the 2010 depreciation charge represented in the last audited financial statements for the company.

4.5 Allowed Rate of Return

4.5.1 Office determined Cost of Equity and Cost of Debt

The cost of capital for CWTC is computed in accordance with the provisions of Schedule 3 of the Licence. Schedule 3 inter alia provides as follows:

"...The return on investment shall be calculated by multiplying the allowed rate of return by the Licensee's total investment base (Rate Base) for the test year. The allowed rate of return is the Licensee's Weighted Average Cost of Capital (WACC). The WACC ("K") will balance the interests of both consumers and investors and be commensurate with returns in other enterprises having corresponding risks which will assure confidence in the financial integrity of the enterprise so as to maintain its credit and to attract capital. The WACC will be based on the actual capital structure or an appropriately adjusted capital structure which adjustment is required to keep parity of the interests of the consumers and investors and at the time of the filing such capital structure and WACC shall be adjusted by any known and measurable changes which are expected to occur during the test year.

Return on Investment = K%(Rate Base)"*

4.5.2 NWC is the majority shareholder of CWTC with 85.2% share ownership. Ashtrum is the minority shareholder with 14.8%.

4.5.3 CWTC proposed that its estimated WACC be similar to the cost of debt of 11.2494% based on the interest payable on the US\$37 Million loan from the NCB.

The WACC is usually based on an appropriately adjusted capital structure that incorporates gearing and calculated as follows:

WACC = Equity percentage of capital (cost of equity) + Debt percentage of capital (post tax cost of debt).

In the case of CWTC, the company relied almost totally on debt. Acknowledging this reality the Office has deemed it permissible to accept the proposed WACC of 11.2494% which represents the actual cost of debt to CWTC.

Cost of Equity

The relevant rate (asset) base was derived by the OUR to be J\$3.7 billion. Since the ROI is the WACC multiplied by the Rate Base, and the WACC has been determined to be 11.2494%, the applicable ROI is calculated as follows:

$$\begin{aligned} \text{ROI} &= \text{WACC} * \text{Rate Base} = 0.112494 * 3,721,529,804 \\ &= \text{J\$418.6 million} \end{aligned}$$

Since the cost of debt has already been accounted for in finance cost of J\$411,619,190 as determined, the remaining portion to be applied in the tariff determination is the return on equity (ROE) derived as follows:

$$\begin{aligned} \text{ROE} &= \text{Return on investment} - \text{cost of debt} \\ &= \text{J\$418.6 million} - \text{J\$411.6 million} \\ &= \text{J\$7.0 million} \end{aligned}$$

4.6 Revenue Requirement

Revenue Requirement is the amount of funds that a company requires to be financially viable while delivering a reliable quality of service to its customers. The Revenue Requirement is derived from the summation of the total operating costs (including depreciation & loan interest), taxes and return on investment. The Office has determined that the Revenue Requirement is \$971.5 Million as set out in Table 11 below.

Table 11: CWTC's Revenue Requirement

ITEM	CWTC PROPOSED	OUR DETERMINED
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Asset Base (J\$)	4,250,488,803	3,721,529,804
WACC (Pre -Tax)	11.2494%	11.2494%
OPEX- before Int (J\$)	433,745,504	273,171,757
Finance Cost (J\$)	359,704,990	507,325,514
Depreciation (J\$)	180,602,829	180,602,829
ROE (J\$)	482,931,688	7,042,102
Taxes (J\$)	206,970,723	3,350,029
Working Capital Deficit (J\$)	769,900,648	-
Base Revenue Requirement- BRR (J\$)	2,433,856,382	971,492,232

- 4.6.1 The total operating cost is the cost that CWTC incurs from operating the regulated entity annually.
- 4.6.2 The OUR determined that the return on equity is derived by computing the difference between the return on investment and the cost of debt.
- 4.6.3 The **base revenue requirement is \$971.5 Million which will be recovered through the rates determined below.**

4.7 Forecasted Volumetric Flow

CWTC included a demand forecast in the Tariff Application which suggested that demand is projected to increase. Demand is forecasted in terms of the number of sewerage intake into the Soapberry Plant. Therefore, CWTC indicated that the number of connections to the sewerage system is likely to increase with population growth and the Portmore Sewerage Project.

In the demand forecast section of the Tariff Application, CWTC indicated that the 2001 population in Portmore was 1.57 times that in 1991 with scope for further growth given the development of the increasingly urbanized area. Supporting this view, the Population and Housing Census

2011 reflected a 14.10% population increase in Portmore between 2001 and 2011.

Notwithstanding, the Office excluded the projected flows from the Portmore treatment facility although it is expected that once these are on stream they will in fact increase flows. The 2012 volume of 13,440,470 M³ was applied to the base rate determination as this reflects the accepted practice that in determining rates the regulator will take into account such cost, revenue and quantities as are known and measurable at the time of computation.

4.8 Fixed and Variable O&M cost

In order to properly facilitate the recovery of cost by CWTC, the Office has determined that the base revenue requirement shall be broken down into fixed and variable costs. The apportionment was applied by deriving fixed and variable tariffs as shares of the revenue requirement attributable to fixed and variable costs respectively.

4.8.1 Fixed O&M Costs

These include direct costs associated with the O&M of the wastewater facilities and indirect costs associated with the operation of CWTC.

Direct Fixed O&M Costs

These include WOMC personnel costs and gross margin which will be capped at agreed levels as well as other operating expenses which will be passed through directly to CWTC.

The total fixed cost amounted to J\$353 million representing 36.34% share of the revenue requirement as determined (see Table 12 below).

4.8.2 Variable O&M Costs

These are costs that will vary with the volume of wastewater treated. The total variable cost amounted to J\$618.5 million representing 63.66% share of the revenue requirement as determined (see Table 12 below).

Table 12: Fixed & Variable Cost Share of Revenue Requirement

Fixed O&M Share of RR	TOTAL COST
Fixed O&M payments to O&M Contractor – WOMC (\$/Year)	90,640,968
Other fixed O&M Cost - Mgt of CWTC including, depreciation etc. – CWTC (\$/Year)	262,367,158
Total Fixed O&M Cost (\$/year)	353,008,126
Variable O&M Share of RR	TOTAL COST
Volume of wastewater assumed in calculation of variable O&M costs (M ³ /day)	36,834
Volume of wastewater assumed in calculation of variable O&M costs (M ³ /year)	13,444,470
Variable O&M Cost - excluding electricity (\$)	565,653,616
Electricity Cost (\$)	52,830,490
Total variable O&M cost (J\$)	618,484,106
Base Revenue Requirement(J\$)	971,492,232

CHAPTER 5: Rate Structure

5.1 Sewerage Base Rates

The Office has determined that the average tariff (volumetric rate) for CWTC to serve NWC is J\$72.26/M³ (see Table 13 below). This rate was derived by taking into account all costs that are faced by CWTC from operating its sewerage services.

Table 13: Calculation of Rate

ITEM	CWTC PROPOSED	OUR DETERMINED
Base Revenue Requirement- BRR (J\$)	2,433,856,382	971,492,232
WW Flow Volume (M3)	11,572,433	13,444,470
Average Tariff (J\$/M3)	210.32	72.26

Fixed and Variable Rates

The Base Tariff structure is designed to allow for efficient and fair rates as follows;

- A Fixed tariff of J\$29.4 million per month or J\$392.23/M³ per month of net available capacity (75,000M³/d); and
- A Variable (volumetric) tariff of J\$46.00/ M³

The result of the rates above is an average tariff of J\$72.26/ M³.

Tables 14 and 15 (below) depict the fixed and variable rates as determined.

Table 14 Fixed O&M Price Calculation & Indexation

	Unit	WOMC	CWTC	TOTAL	Index	Base Date	Base Index Value	Frequency
Fixed O&M payments to O&M Contractor	\$/Year	90,640,968	-					
Other fixed O&M Cost - Mgt of CWTC including, depreciation, ROE etc.	\$/Year	-	262,367,158					
Total Fixed O&M Cost	\$/Year	90,640,968	262,367,158	353,008,126				
Fixed O&M Cost	\$/Month	7,553,414	21,863,930	29,417,344				
Plant Capacity	M ³ (Cubic Metre)	75,000	75,000	75,000	FX: J\$/US\$		99.67	Monthly
Fixed O&M Price	\$/M³ of net available capacity per month	100.71	291.52	392.23	US CPI	Feb 2013	232.17	Annually

Table 15 Variable O&M Price Calculation & Indexation

Parameter	Unit	CWTC	Index	Base Date	Base Index Value	Frequency
Volume of wastewater assumed in calculation of variable O&M costs	M ³ /day	36,834				
Volume of wastewater assumed in calculation of variable O&M costs	m ³ /year	13,444,470				
Variable O&M Cost - excluding electricity	\$	565,653,616				
Electricity Cost	\$	52,830,490				
Total variable O&M cost	\$	618,484,106				
Variable Rate	\$/m³	46.00	PAM	Aug-13	PAM	Monthly

5.2 Price Adjustment Mechanism (PAM)

- 5.2.1. The PAM is an indexation mechanism that is applied to the base rates and charges for water and sewerage services to preserve the real revenue of a company. The PAM captures the movement of the consumer price index, foreign exchange (J\$/US\$) and kWh charge.
- 5.2.2 The Office has determined that a PAM equivalent to that of NWC (as specified above) should be applied to CWTC's base rate one month after it is applied by the NWC. This is appropriate since the nature of both businesses is similar and there are common costs that are borne by both companies. The Office has also determined that all the indices are to be applied on a monthly basis. The PAM will also be reset at its anniversary at which time the new base values for the 3 components will be set. The Office will also determine at the anniversary of the PAM, if the rates should continue to be tied to the NWC's PAM rate.

5.3 S-Factor Account

The S-factor account proposed by CWTC is not a matter to be determined by the OUR. The issues related to the management of CWTC receivables and viability is the responsibility of the CWTC. As such the OUR is of the view that this should be addressed within the contractual arrangement between NWC and CWTC.

Chapter 6: Quality of Service Standards

The OUR has not received a response from the NWC, the majority and controlling shareholder and sole customer of CWTC, regarding the guaranteed or quality of service standards. The licence however prescribes standards to which CWTC is required to conform and in addition to reinforcing such standards the Office has prescribed at 6.2 below a number of standards with which CWTC shall comply.

It is to also to be noted that the WTA governs the provision of wholesale sewerage service by CWTC to NWC and it is the NWC that interfaces with the public at the retail level. The Office therefore expects CTWC and NWC to make contractual provisions that would treat with CWTC's impact on the NWC's ability to meet its (NWC's) established standards.

The Office may however, from time to time introduce additional or vary the service standard and will have regard for the performance of CTWC in meeting same at the tariff review.

6.1 Service Standards

CWTC shall conform to the service standards as specified by its Licence.

6.2 To ensure that service delivery to the customer does not fall below the minimum level, the following additional standards must be adhered to:

WOS1 – Sewerage Effluent Quality

Definition: the company is required to periodically test effluent samples to verify that the plant is operating within the standards specified by the NEPA.

99% Definition: The company is required to periodically test effluent samples to verify that the plant is operating within the standards specified by the NEPA.

99% of all samples tested must meet the required NEPA standards.

CWTC shall provide the Office with copies of any license, standards, special permits issued by NEPA/NCRA from time to time, which shall form part of the License.

Chapter 7: Summary of Decision

In summary, the Office has made the following determinations:

- 1) Waste Water Volumetric Flow of 13,444,470 M³
- 2) Base Revenue Requirement of J\$971.5 million
- 3) Average Tariff of J\$72.26/M³
- 4) Fixed tariff of J\$29.4 million per month or a rate of J\$392.23/ M³ of net capacity per month
- 5) Variable (volumetric) tariff rate of J\$46.00/ M³ per month
- 6) A monthly PAM will be applied to the rates charged by CWTC
- 7) S-Factor account disallowed
- 8) CWTC must submit at least one (1) year of audited financial statements and production and consumption data prior to the next review of the rates.
- 9) CWTC must adhere to the overall standards as outlined above.

The rates become effective on September 1, 2013 and pursuant to Schedule 3 of the Licence will remain effective for a period of two (2) years, subject to the annual adjustment occasioned by the application of the PAM on the variable base tariff and on the FX and US-CPI adjustment on the fixed tariff.

Appendix

Plant Operating Cost	CWTC Recommended WOMC Budget Dated 12/24/12	OUR Determination
Fixed Operation & Maintenance Expenses		
Salary/ wages	J\$28,154,155.00	J\$37,988,832.00
security	J\$16,500,000.00	J\$12,168,000.00
Safety Supplies & Consultation	J\$480,000.00	J\$480,000.00
Stationery	J\$300,000.00	J\$300,000.00
Accounting, Payroll, IT services	J\$3,999,136.00	J\$3,999,136.00
Detergent & Cleaning Materials	J\$480,000.00	J\$480,000.00
Canteen/Kitchen	J\$500,000.00	J\$500,000.00
Telephone, Internet, Cable-Site	J\$1,000,000.00	J\$1,000,000.00
Insurance (EL)	J\$325,000.00	J\$325,000.00
Motor Vehicles	J\$4,000,000.00	J\$4,000,000.00
Lab Services	J\$3,000,000.00	J\$3,000,000.00
Site Maintenance	J\$2,400,000.00	J\$2,400,000.00
Total	J\$61,138,291.00	J\$66,640,968.00
Variable Operation & Maintenance Expenses		
Equipment Maintenance	J\$14,400,000.00	J\$14,400,000.00
Electricity	J\$47,520,000.00	J\$52,830,490.27
Removal of Grit/Rubbish	J\$1,500,000.00	J\$1,500,000.00
Water Charges & Supply	J\$858,072.64	J\$858,072.64
Fuel, Gas, Oil & Grease	J\$2,340,000.00	J\$2,340,000.00
Chemical	J\$35,880,000.00	J\$35,880,000.00
Total	J\$102,498,072.64	J\$107,808,562.91
Total Direct Expenses	J\$163,636,363.64	J\$174,449,530.91
Company Overhead	J\$16,363,636.36	J\$0.00
Total Expenses	J\$180,000,000.00	J\$174,449,530.91
*Professional/Technical Fees	J\$24,000,000.00	J\$24,000,000.00
Total O&M Charges Per Annum	J\$204,000,000.00	J\$198,449,530.91