
Office of Utilities Regulation

Dynamic Environmental Management Limited

Water and Sewerage Rates for Morris Meadows

Determination Notice



OFFICE OF UTILITIES REGULATION

January 23, 2009

DOCUMENT TITLE AND APPROVAL PAGE

DOCUMENT NUMBER: WAT 2009/01:det 01

DOCUMENT TITLE: Dynamic Environmental Management Limited Review of Water and Sewerage Rates for Morris Meadows– Determination Notice

1. PURPOSE OF DOCUMENT

Sets out the Office’s determination on Dynamic Environmental Management Limited water and sewerage rate application.

RECORD OF REVISIONS

Revision Number	Description	Date
-	-	-

APPROVAL

This document is approved by the Office of Utilities Regulation and the decisions therein become effective on **February 1st, 2009.**

On behalf of the Office:



.....
George Wilson
Director General (Acting)

January 23, 2009
Date

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Chapter 1: Executive Summary

- 1.1 Dynamic Environmental Management Limited (DEML) applied for a license to provide water and sewerage service to Morris Meadows, Portmore St. Catherine on 28th August 2006. Consequent on the Office's recommendation the Minister issued 20 year licenses for each of the respective services on 21st November 2007.
- 1.2 DEML submitted a rate application to the Office on the 29th January 2007. However, the application was not processed; because the company was awaiting the issuance of their licenses to provide water and sewage services to Morris Meadows. The Office was also awaiting completed financial information from the company in order to begin the processing of the tariff application. DEML submitted all the relevant information to the Office on September 30, 2008.
- 1.3 In its application the company proposed a two part tariff to recover its operating expenses and its capital investment. DEML proposed a service charge of \$250, and a flat volumetric rate of \$124.06 per 1000 liters. Sewage service is proposed to be billed at 100% of water consumption and at rates equivalent to the water rates. The company further proposed a connection fee of \$3,000 and reconnection fee of \$ 1000.
- 1.4 As part of the rate application review, the Office's policy is to hold public consultations to get the views of interested stakeholders and residents in Morris Meadows. A joint public hearing between the residents of Morris Meadows and Caribbean Estates was held on February 4, 2007 at Caribbean Estates. Due to the low turnout from the Morris Meadows residents the Office had decided to compile comments from the residents using pamphlets.
- 1.5 The Office has reviewed DEML's proposal, and has also taken into consideration the views raised at the public hearing in arriving at its decisions.
- 1.6 The Office found it necessary to make several adjustments to DEML's proposed capital and operating costs. The Office has determined that capital cost invested by DEML is \$8.68M and the assessed projected operating cost is \$13.28¹M.
- 1.7 The Office has determined that the service charge is \$300, and the flat volumetric rate is \$83.78 per 1000 liters. The connection fees and reconnection fees are \$2000 and \$1,000 respectively.
- 1.8 A monthly PAM will be applied to the rates charged by DEML.
- 1.9 The Office has developed quality of service standards to regulate the general service delivered by the company. These standards are categorized as either

¹ The figure for operating cost inclusive of depreciation.

overall or guaranteed standards. The overall standards are general in nature and the performance of the company against these standards will be taken into consideration whenever the rates reviewed.

The guaranteed standards, on the other hand, address specific areas of service delivery in the relationship between the company and its customers. A compensatory payment of four (4) times the service charge must be automatically credited to the customer's account by DEML if any of these standards are breached. In instances where it is apparent that DEML did not automatically credit the customer's account with the compensatory payment the customer has the right to appeal to the Office for further redress.

- 1.10 The rates as herein determined by the Office becomes effective February 1, 2009 and will remain in effect for a period of fifteen (15) months or such longer period as the Office may determine.

DEML must submit at least one year of audited financial statement prior to the next review of the rates. DEML must also submit to the Office bi-annual reports on its performance against the standards.

Chapter 2: Introduction

- 2.1 Dynamic Environmental Management Limited (DEML) is a limited liability company formed in April 2005. Currently, DEMML provides the Vineyards Estate and Caribbean Estates with water and sewage services. They have also gained licenses to supply the Morris Meadows housing scheme with water and sewage services.
- 2.2 Morris Meadows is a housing development, located in Portmore St. Catherine. It consists of 423 housing units, 1 commercial property with several potential customers and lots reserved for a community center and playfield. DEMML has sole responsibility for the operation and maintenance of the water and wastewater systems.
- 2.3 DEMML is required, under the license and pursuant to the OUR Act, to apply to the Office for the rates to be charged for providing its services. The company submitted its application on January 29th 2007. The review of the rates was however put on hold because the license to provide water and sewage to Morris Meadows community was not yet granted. The company also had a few important documents outstanding before its application could be processed.
- 2.4 On September 30, 2008 DEMML submitted all the relevant information and documents needed for the processing of its rate application. The company also reviews its initial rate application and provided the Office with a revised proposal.

Description of Plants

2.5.1 Water

In DEMML's initial rate application the company stated that the source of the water is from a tube well located at Morris Meadows within the development. DEMML then indicated that the water facility consisted of a deep well pump, chlorinator, storage tanks and distribution lines. There is a license from the Water Resource Authority that allows for the extraction of a maximum of 1,200m³ of water on a daily basis. The extraction of water was contemplated to be done by a submersible deep well pump; the extracted water would then be treated via a gas chlorinator system completed with Boosters and Ejector. The water would then be stored in a 225,000 imperial gallon bolted steel membrane lined water tank.

However, on September 30th 2008 DEMML presented the Office with new information and data about the source of its water. The company outlined that the well located on the premises was not transferred to them by the developers. Therefore water will now be purchased from the developer (N.F Barnes) at a cost of \$10.50 per 1000 liters. It will then be stored and treated.

The water will be distributed to the residents via a duplex pump pressure system. The system is designed such that the water pressure will be 45 pounds per square inch (psi). A back wash filter is also installed to deal with occasional high turbidity.

2.5.2 Sewerage

The sewerage treatment system consists of waste stabilization ponds, reed beds and tile fields. DEML has communicated that the sewage will be treated to tertiary level. The company's sewage treatment system is designed to comply with NEPA's standards.

Chapter 3: DEML's Proposal

3.1 Customer base

DEML expected an initial customer base of 35 but projected that this number would grow to 400 over a 2-year period. Table 1 shows the projected increase in the company's customer base over time.

Table 1: Projected Customer Base

Year	Additional	Total
2007 – January	35	35
February	40	75
March	40	115
April	45	160
May	45	205
June	51	256
July	43	299
August	22	321
September	10	331
October	10	341
November	10	351
December	8	359
2008 – January	7	366
February	7	373
March	7	380
April	20	400

However, DEML's revised proposal submitted on September 2008, showed that to date there are only 223 completed units in the housing development, of that amount only 160 household are current customers'. The existing lots are expected to be completed in the near future.

3.2 Rate Proposal

The company proposed a flat water rate of \$124.06 per 1,000 liters and that sewerage charges be billed at 100% of water charges. The company projected that average monthly household consumption would range between 14,000 and 27,000 liters per month. However, after an examination of the consumption level at Vinyards Estate and Caribbean Estate, DEML revised their proposal and came to the conclusion that monthly consumption is more properly estimated at 12,000 liters.

A service charge of \$250 is also proposed and is independent of consumption. DEML stated that \$250 is reflective of the cost incurred to provide meters, prepare and deliver bills.

A connection fee of \$3,000 and a reconnection fee of \$1,000 were also proposed by the company.

3.3 Operating Expenses

DEML projected that it will spend \$12.66M in its first year of operation. Table 2 summarizes the list of operating expenses proposed by DEML.

Table 2: Projected Operating Expenses

Type	Amount (JA\$)
Direct Cost of Sales	3,934,720
Sales And Marketing	350,000
Property & Utilities	1,008,000
Operations	1,415,000
Banking & Other	1,001,267
Administrative Cost	3,408,658
Interest Term Loan	210,000
Depreciation	1,327,902
Total Expenses	12,655,547

3.3.1 Administrative Costs

The amount proposed by DEML for this cost category is \$3.41M This is made up of indirect wages of \$2.06M², health insurance of \$240,000, uniform allowance of \$65,000 and Management Fees of \$1.05M.

3.3.2 Sales and Marketing Costs

The cost proposed by DEML for this cost category is \$350,000 in the first year of operation. This figure includes costs associated with Public Relations and the printing of Newsletters. The company has decided to take the initiative to inform their customers of the various services they provide.

Property and Utility Costs

DEML projects that it will incur \$1.00M for this cost item. Majority of this expense is explained by property rental cost and utility expense incurred at the site office. Utility expenses include telephone costs and electricity cost associated with the general operation of office equipment.

3.3.4 Operations Costs

DEML has made provision of \$1.42M in the first year for operation costs, which covers maintenance and repairs as well as conducting regular testing of its water and sewerage facilities. Inclusive in this amount is also \$90,000 for operations payable.

3.3.5 Banking and Other

There is a provision of \$1.00M for this cost item. This is attributed to insurance expense, audit and legal fees as well as bank charges. The company identified \$21.79M of its asset base that it will insure.

² Indirect wages include wages for a customer service representative, Accounting Officer, Accounting Clerk, Technical services and Commercial services Managers.

3.4 Capital Funding

DEML stated that part of its business operations will be financed with an operating loan of \$3.5M. This loan will be repaid over a period of 5 years at an interest rate of 18%. The loan will be used to finance the cost of purchasing Water Meters and Lock-off Valves. This loan will be secured against the water and sewerage equipment at Morris Meadows.

3.5 Asset Base

DEML initially proposed that the combined projected asset base for the water and sewerage business is \$116.359M. However, due to contractual agreement between themselves and the developer, this projected figure was later revised. DEMML's projected asset base now stands at \$111.09M. This reduction occurs because the Deep Well Pump and Pump House will not be transferred to DEMML by the developer.

This figure however does not represent the amount of assets purchased by DEMML. Of the total asset base, DEMML stated that their projected investment of assets amounted to \$11.60M. Total asset transferred to DEMML by the developer is projected at \$99.49M. Table 3 shows the cost associated with each asset.

Table 3 Schedule of DEMML Assets³

Sewage Assets	Value (\$)	Total (\$)
Generator (installed)	1,500,000	
Lift pumps (installed)	5,269,418	
Sewer lines	17,244,489	
Pond Construction	39,367,283	
Total – Sewage Assets		63,381,190
Water Assets		
Pressure Pumps and Controls	9,715,781	
Storage Tank	9,578,158	
External Water lines	15,161,658	
Security fencing	1,652,344	
Total – Water Assets		36,107,941
Total value of fixed assets acquired (water & sewage)		99,489,131
Other Assets		
Billing software and hardware	900,000	
Container office (site)	700,000	
Generator	1,500,000	
Water truck	3,000,000	
Pickup	1,000,000	
Office Furniture	275,000	
Water meters	3,747,826	
UG valves	477,557	
Total value of DEMML investment		11,600,383

³ There was no record of Land or Easement costs in the Asset Base.

Total value of asset base	111,089,514
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3.6 Depreciation

DEML has included provision for depreciation of \$1.33M on the asset which it has purchased. No provision for depreciation is made for assets transferred from N.F Barnes.

3.7 Return on Investment

The company proposed that it expect to earn a return on investment of 18%. That is, DEML stipulates that total annual return on investment will be \$2.08M.

3.8 Public Consultation

As part of its rate application procedures, the Office consults with the public in general and residents in the affected communities specifically, to get comments on the rate submission. The Office held such a hearing on 4th February 2007. The Office also distributed flyers to home owners at Morris Meadows to acquire additional feedback as it regards to receiving water from DEML.

3.9 Price Adjustment Mechanism (PAM)

DEML stated that their cost of electricity has increased significantly beyond expectations, and that this cost represents a significant portion of their overall expense. Therefore, the company is proposing to have a monthly PAM to cushion the effects of high changes in electricity costs as well as inflation and exchange rate changes. The company later communicated that the proposed PAM methodology be similar to that of the National Water Commission.

Chapter 4: Consultation at Morris Meadows

As part of the Licensing and tariff process for Dynamic Environmental Limited (DEML), the Office of Utilities Regulation (OUR) convened a public consultation meeting on Sunday, February 4, 2007 at Caribbean Estates Housing Scheme, where the rates for both Caribbean estates and Morris Park were discussed. Several representatives from DEML and the OUR were present to hear the views of the residents. A summary of the concerns communicated are outlined below:

4.1 Experience of DEML management

- The residents expressed concern regarding the experience and expertise of the operators in private water distribution. They were also wary of the Company's ability to deliver a service that is better or comparable to NWC.

4.2 Complaint Handling

- Concern was raised as to the time it would take to resolve non billing complaints. This was as a result of the DEML's generalization of the resolution time of 30 days for all complaints outside of billing.
- **Response:** DEML assured the residents that the company will endeavour to resolve non-billing complaints in the shortest time possible.

4.3 Back - up System

- An enquiry was made as to whether DEML had an emergency system in place in the event of failure or fault on the central system.
Response: The residents were advised by DEML that water will be trucked to residents in the event of operational failure of the system.

4.4 New Era Homes

- The question was posed as to whether New Era Homes – the developers for Caribbean Estate – were shareholders of DEML.
Response: The residents were assured by DEML that they had no such relationship with New Era Homes.

4.5 Water Quality Standards

- The residents asked DEML to determine on a scale of 1-10 their position in terms of water quality.

Response: DEML advised that they were between 7& 8.

- The residents enquired of the Office the standard expected from DEML for water quality.

Office Comment: and was advised that all water providers have to conform to the standard stipulated by the Ministry of Health.

4.6 Profit Maximization

- The residents were concerned that as DEML is a private Company, their interest would be profit maximizing instead of having rates comparable to those of the National Water Commission. They were of the view that NWC has more of a ‘conscience’ in terms of the rates charged.

Response: DEML responded by stating that NWC is in a better position to provide water at a lower cost due to economies of scale as well as benefits derived from subsidies.

Office Comment: The rates of all the water companies are set by the OUR.

4.7 Provision for dissolution of arrangement with DEML

- Enquiry was made as to the existence of a process that would allow the residents to exit the arrangement with DEML in the event that the rates become too costly or the service deteriorates.

Office Comment: The Office advised the residents that the license made provision for ‘step –in rights’ that gives the Minister the authority to take over the business in the event that the service provider fail to meet the provisions of the license.

4.8 Rates

- The residents enquired whether the rates would increase when NWC rates increase.

Response: They were advised by DEML that the rates for each provider were independently set by the OUR.

- An enquiry was made as to the frequency of which DEML could apply for a rate increase, and given that they are a new company, the impact it will have on the prescribed tariff.

Office Comment: The Office subsequently advised the residents that without an operating history, the OUR would review the company’s debts and projections of staff costs. Benchmarking of other water companies in a similar environment would also be taken into account in setting the tariff. The Office further advised that it may also be necessary to have an interim 15 months tariff review until a history is derived, after which the company would be eligible for a tariff review every 3 years.

4.9 Exclusivity of the License

- The residents were of the view that DEML should not be given an exclusive license for the housing scheme as such an action places them in a monopoly situation with a private owned entity. They believe that the license granted should make them subject to competition – similar to that of the telecommunications sector - should at a later date another provider wishes to supply the area.

Office Comment: The Office informed the residents that it is inefficient for water companies to operate in a similar fashion to that of the telecoms sector. He explained that throughout the world, license for water tends to be exclusive due to the cost of putting in the infrastructure necessary for the provision of the supply. It should be noted however that the mandate for NWC to provide water services islandwide still exists but that they would have to provide their own infrastructure in order to compete.

Chapter 5: Office Evaluation of Application

5.1 Introduction

In order to assess Dynamic Environment Management Limited's rate application, the Office has applied the Rate of Return Methodology. This methodology allows the company to cover its cost of service in the most efficient way possible.

The Methodology is specified as follows:

$$\text{Revenue Requirement} = \text{Cost of Service}$$
$$R = O + D + T + kB$$

Where R = revenue requirement
O = operating expense
D = depreciation allowance
T = taxes
k = a fair rate of return
B = rate base

$$\text{Price/Tariff} = \frac{\text{Revenue Requirement}}{\text{Quantity Demanded}}$$

5.2 Operating Expenses

Since the development of the Morris Meadows Housing Complex, the company has been incurring operating expenses such as: administration cost, cost of sales, banking and financial costs and maintenance costs. These costs form the basis of determining the appropriate rates to be charged by the company as they represent actual costs that are incurred to provide the services.

5.2.1 Administration cost

DEML proposed total administration costs as being \$3.41M this cost category consist of salaries for indirect workers, health insurance costs, uniform, and management fees. The indirect workers consist of two customer service representative, a commercial service manager and a technical service manager. It was stated that only the two customer service representatives will be employed as full time workers. The remaining technical staff will provide services to all three sites of DEML, therefore only 1/3 of the technical officer's salary (part – time workers) is applied to indirect salary. The Office has taken the proposed indirect salary into consideration and has concluded that the total indirect wages is \$1.97M.

Various allowances statutory provisions and benefits were made for indirect labour. These allowances include health insurance and uniform allowance. The Office has adjusted these figures to correspond with the existing work force. Thus, the cost for statutory provisions is \$247,996

The directors have decided that they will oversee the operations of the company in its initial stage. DEML communicated that the directors will not be paid a salary, but will instead be given a management fee equivalent to \$1.05M per year. The office is in agreement with this procedure but believes that the total management fee should be paid in equal installment of \$87,500 per month. As soon as the company starts making a profit a manager will be employed to oversee its operations.

When all the above cost changes are taken into consideration the Office has determined that total administrative cost faced by DEML is \$2.91M.

5.2.2 Cost of Sales

DEML proposed that the cost of sales includes production wages of \$1.62M, Cost of goods and services of \$2.18M⁴ and chlorine costs of \$130,000. Thus, total cost of sales proposed by the company is \$3.93M.

5.2.2.1 The Office noted that production wages proposed by DEML was 1.62M. This cost includes payment to six part time members of staff⁵.

5.2.2.2 DEML proposed that the cost to supply electricity per customer is \$600. However due to the increase energy costs they resubmitted a proposal stating that the electricity cost per customer has increase by approximately 59%. The Office has decided to use actual JPS bill for Morris Meadows to approximate this cost, as it would be more reflective of actual electricity costs.

From an examination of past JPS bills, an average KWH was calculated for DEML for both their Distribution Pump and their Sewage Pump. The average KWH to pump both water and sewage to 427 customers is calculated to be 6,000kwh. This average was used to calculate both fuel and non-fuel electricity charges. Given DEML's potential customer base the average monthly electricity charge incurred by them is estimated to be approximately \$245,806. Thus, the Office has determined that the average annual electricity cost faced by DEML to pump water and sewage to its customers is \$2.95M.

5.2.2.3 DEML has included as part of their cost of sales the cost of purchasing bulk water from the developers. This water will be treated and resold to customers. The economic rate charged by the developers is \$10.50 per cubic meter; if this rate is applied to the total customer base of 427 then the total cost of water purchased by DEML is \$ 807,030

The Office has determined that the Chlorine cost is \$38,916.

5.2.2.4 When all these adjustments are factored in, the total cost of sales is \$5.42M.

⁴ This includes the cost of electricity.

⁵ These staff members are a field technician, labourer, sewage plant operator, meter reader and 2 plumbers.

5.2.3 Banking and Other

DEML stated that banking and other costs are approximately \$1.0M. However, the Office has estimated audit fees and legal fees as being \$200,000 and \$150,000 per annum respectively. Base on the estimated value of insurable assets insurance cost was calculated to be \$571,267 per year. Thus, the total Banking and other costs allowed by the Office is \$951,267.

5.2.4 Operations and Maintenance

DEML proposed \$1.415M in the first year for this expense category. This amount includes costs associated with general maintenance, the purchasing of supplies, quality testing expenses, regulatory fees, and vehicle and travel cost. The Office has adjusted the supplies expense to correspond with the present cost of supplies. The Office is also of the belief that accounts payable are past costs and are not included in regulatory accounts. Thus \$90,000 that represents operations payable was deducted from DEML's proposed operation cost. The total operating expense approved by the Office is \$1.27M.

5.2.5 Property and Utilities

Included in DEML's provision of \$1.00M for cost associated with property and utility is \$495,000 for rental cost, \$249,000 for office utilities and \$84,000 for stationeries and supplies charges. The Office has adjusted the Office Utility costs downward, since DEML will be serving all three sites from the existing Office. The stationary and supply cost was adjusted from the initial submission by the level of inflation since. The determined amount for property and utility is \$846,200M.

5.2.6 Sales and Marketing

It is important that DEML promote their business in order to be successful in the market. This can be done by assisting the customers in the service areas to become aware of the service delivery that they should expect from their service provider. As part of its license condition, DEML is required to promote the terms and condition of service, including the quality of service standards to its customers. Consequently, adequate provisions should be made for marketing costs. DEML has proposed that this cost is \$350,000. However, after receiving quotations of various sales and marketing costs the Office has concluded that DEML's sales and marketing cost is overstated. Therefore, the Office has approved \$142,000 for this cost category.

5.2.7 Loan Interest

DEML reported that the company will obtain a term loan of \$3,500,000 at a rate of 18% for 5 years. The company estimated that the loan interest will be \$210,000. However, the Office believes that in order to accurately calculate interest on loan, an amortization schedule will give a better result. The Office has calculated that loan interest as \$592,123 per annum.

5.2.8 With these adjustments the **operating costs to be included in the revenue requirement is \$13.28M⁶**. Table 4 compares the Office's determined operating costs component with DEML's proposal.

Table 4: Office determined operating costs

Type	DEML Proposed (\$)	Office Determined (\$)
Direct Cost of Sales	3,934,720	5,415,618
Prod. Wages	1,620,000	1,620,000
Goods and services	2,184,720 ⁷	-
Utility and services	-	2,949,672
Water Purchase	-	807,030
Chlorine	130,000	38,916
Sales And Marketing	350,000	142,000
Property & Utilities	1,008,000	846,200
Rental Cost	495,000	495,000
Office Utility expenses	249,000	83,000
Telephone	180,000	180,000
Stationary & Supplies	84,000	88,200
Operations	1,415,000	1,265,000
Banking & Other	1,001,267	951,267
Bank Charges	30,000	30,000
Audit & legal	400,000	350,000
Insurance	571,267	571,267
Administrative Cost	3,408,658	2,912,996
Salaries	2,055,000	1,965,000
Health Insurance	240,000	196,000
Uniform	65,000	51,996
Management Fees	1,048,658	700,000
Interest Term Loan	210,000	592,123
Depreciation	1,327,902	1,156,533
Total Expenses	12,655,547	13,281,737

5.3 Taxes

The corporate tax rate is 33 1/3%. The Office has however incorporated tax provision in the determination of the pre-tax return on capital so there is no explicit provision for taxation in this determination.

⁶ This cost represents operating cost plus depreciation.

⁷ This cost is inclusive of electricity expense

5.4 Term Loan

DEML included as part of its rate application a term loan valued at \$3.5M. This loan is expected to finance the purchasing of meters and UG Valves. The loan will be secured against the sewage and water equipment at Morris Meadows. DEML expects to repay the loan over a period of 5 years at an interest rate of 18%.

The Office is of the view that while the loan aids in the development of the business, the cost for meters and UG valve is included as a part of the rate base. Therefore, the Office does not include the \$3.5M explicitly as a financial or an operating cost. However as indicated above, the interest on loan is included in the calculation of operating cost.

5.5 Rate Base

DEML's fixed assets consist of sewage and water assets. The total value of assets that DEML proposed as their total investment is \$11.60M. The Office has reviewed DEML's proposed asset base and the following conclusions were made.

- 5.5.1 The cost for water meters included in the proposal was overstated; DEML proposed that this cost was \$3.74M. However, upon examination of the invoice the figure was adjusted downwards to reflect the cost associated with the purchasing of 427 water meters. The new cost for 427 water meters is \$2.124M.⁸ It is expected that as soon as an individual becomes a customer of DEML their premises will be metered. The value for the UG valves (lock offs) was also adjusted to correspond with the 427 meters. As a result the Office has included a cost of \$ 478,000.
- 5.5.2 DEML proposed that they will incur a cost of \$1.5M⁹ to purchase and install a generator that will assist with providing backup power to the water system. The Office has allowed this provision.
- 5.5.3 The Office has made adjustments to the Billing Hardware and Software cost. This cost has been reduced to \$300,000. This decision was taken since the Billing Hardware and Software package will provide services to all three sites owned by DEML Vineyard Estates, Caribbean Estates and Morris Meadows. DEML had proposed a cost of \$900,000.
- 5.5.4 DEML has proposed that they will incur costs of \$3.0M and \$1.0M respectively for the purchasing of a water truck and a pick- up. The Office is of the opinion that the costs of these assets are reasonable costs. Therefore no changes were made to these costs.
- 5.5.5 Based on the above mentioned changes the Office has concluded that the total value of assets invested by DEML is \$8.68M.

⁸ This is reflected as a provision for the total customer base. The total number of meters used in the calculation is 427.

⁹ This amount also includes the cost of shipping

- 5.5.6 A significant portion of the company's asset base was transferred by the developers N.F. Barnes. The Office as a matter of principle does not include assets that are transferred, in determining the rate base and a fair rate of return, as it is of the view that the customers have already paid for these assets in the price of their housing units. The Office will however calculate a return on investment and a depreciation rate based on the assets invested in the business by DEML.
- 5.5.7 After making the necessary adjustments to the assets, the Office has used an asset base of \$8.68M in determining a fair return on DEML's investment. It is based on this value that the depreciation is calculated. Table 5 below outlines the total value of assets invested and owned by DEML as determined by the Office.
- 5.5.8 DEML has proposed that \$3.5 million of the rate base will be financed by loan and the balance by equity contribution

Table 5: Office determined asset base

Asset Type	DEML proposal (\$)	Office determined (\$)
Billing Software and Hardware	900,000	300,000
Container Office Site	700,000	-
Generator	1,500,000	1,500,000
Water truck	3,000,000	3,000,000
Pickup	1,000,000	1,000,000
Office Furniture	275,000	275,000
Water meters	3,747,825	2,124,863
UG valves	477,556.80	478,000
Total value of DEML investment	11,600,383	8,677,863
Total value of asset transferred	99,489,131	99,489,131
Total value of assets	109,437,170	108,166,994

5.6 Depreciation

The Office has included depreciation on the used and useful assets that have been invested by the company. DEML proposed a total depreciation charge on their asset of \$1.33M. After revision of the costs of the assets invested by DEML and the appropriateness of the rate of depreciation, the Office has determined that the depreciation charge is \$1.54M.

5.7 Allowed Rate of Return

In determining a return on equity capital various models can be used. However, the Office is of the view that small private water and/or sewage service providers that provide services to similar demographic and geographic location, and are of similar size, should have a similar allowed return on equity. In previous determinations¹⁰, the Office had deemed that a post-tax allowed rate on equity of 14.60% is predominant for small water providers. This real rate of return is used as operators are encouraged to revalue their assets on an annual basis and DEML has applied for a Price Adjustment Mechanism that will maintain the real value of the approved rates.

Table 6: Allowed Rate of Return

Type of Capital	Amount of Capital	Post-tax Allowed Return	Pre-tax return
Debt	3,500,000	-	-
Equity	5,177,863	14.60%	21.9%
Total	8,677,863		

The pre-tax return to be applied to the rate base to generate the required revenue is 21.90%

5.8 Revenue Requirement

The revenue requirement is derived from the summation of the total operating costs (including depreciation & loan interest) and return on investment. **The Office has determined that the revenue requirement is \$14.42M** and is detailed in Table 7 below.

Table 7: Revenue Requirement Components

Category	Amount (\$M)
Total operating cost	13,281,737
Taxes	-
Pre-tax Return on investment	1,133,952
Total	\$14,415,689

This requirement was adjusted downwards to reflect the additional revenue DEML would collect from service charges. Revenue to be collected from service charge is \$1.54M. Thus, **net revenue requirement is \$12.89M**. This amount will be recovered through the volumetric charges

5.9 Price Adjustment Mechanism

The PAM is an indexation mechanism that is applied to the base rate for water and sewage services to preserve the real revenue of the company. The PAM

¹⁰ See <http://www.our.org.jm/new/PDF-FILES/DEML.pdf> and http://www.our.org.jm/new/PDF-FILES/Can-Cara_Determination.pdf.

captures changes in Foreign exchange, consumer price index, and electricity charge.

The formula used to calculate a PAM is specified as

$$\text{PAM} = [w_{fe} \cdot \Delta FE + w_{cpi} \cdot \Delta CPI + w_{ec} \cdot \Delta kwh] \cdot 100$$

Where w_{fe} is the weight for foreign exchange, w_{cpi} is the weight for CPI and w_{ec} , the weight for the average price of electricity per kwh and Δ is the percentage change in the respective variables, that is, current value of each variable less the base value.

- 5.9.1 The weights are derived from the proportion of DEML's total operating cost that is affected by the three variables. The Office has calculated the weights as being:
- CPI = 0.545
 - FX = 0.240
 - KWH = 0.215
- 5.9.2 The base values of the PAM indices are shown below
- | | |
|---------------|--------------------|
| Electricity | 21.58/KWH |
| Exchange Rate | J\$76.93 to US\$1 |
| CPI | All division 136.9 |
- 5.9.3 The current CPI value should be that published by the statistical institute of Jamaica at the end of the preceding month. The foreign exchange rate should be the average monthly rate as reported by the Bank of Jamaica. The average price of electricity is the total electricity bill for the preceding month divided by the total kwh of energy used.
- 5.9.4 The Office has also determined that the PAM should be applied on a monthly basis. DEML is required to provide the Office with reports of the calculation PAM rates charged to customers on a quarterly basis.

Chapter 6: Office Determined Rates

6.1 Connection fee

DEML has proposed a connection fee of \$3,000 to its systems on the signing of a contract for service. The Office recognizes that labour costs and parts will be utilized to connect individual premises to the water and sewage networks. The proposed fee, however, falls outside the markets range of \$1,000 to \$2000. The Office has taken this into consideration in determining whether the proposed amount is reasonable. DEML service area is not significantly different from the other markets and has such has reduced the connection fee to \$2000.

6.1.1 This connection fee will not apply to commercial customers who may be supplied with service by DEML. Commercial customers are required to pay the full connection charges, which shall include the direct operating cost and the capital costs associated with the outlaying the necessary infrastructure. A return on capital, equivalent to that used by the Office in this determination, shall be applied to this capital cost.

6.1.2 Determination 1

A. *The Office has determined the connection fee to be \$2,000. DEML may charge this connection fee and the customer is liable for payment after the signing of a service contract.*

B. *If commercial customer requests service from DEML, the company may charge the customer the direct costs of service provision. This includes the operating and associated capital costs and a reasonable return on the capital investments. The customer is liable for payment of said sums upon the signing of a service contract.*

6.2 Reconnection fee

DEML proposed a reconnection fee of \$1,000 per customer for reconnection of disconnected service. The Office recognizes that there is a cost involved in reconnecting a service after it has been disconnected. If this service is contracted, the company will have to pay for this service. If the company's personnel are used, then there is the opportunity cost of the labour. Therefore, the Office is of the view that the fee proposed by DEML is reasonable and has no objection to this charge. If, however, DEML, in effecting its disconnection has removed the entire infrastructure, then the customer shall pay the actual cost incurred by the company in reinstating the service.

6.2.1 Determination 2

A. *Reconnection fee of \$1,000 is approved.*

B. *In instances where DEML, in effecting its disconnection, has removed the entire infrastructure, the customer, upon the request of*

the company, shall pay the actual cost incurred by the company for reinstatement of service.

6.3 Rate Structure

In the development of these rates, the Office had to satisfy itself, that the revenues generated from the services were sufficient to cover the revenue requirement of \$14.40M.

6.3.1 In its application, DEML has proposed a two-tiered rate structure. It has a fixed charge (the service charge) which is to be paid monthly regardless of consumption and a flat volumetric rate (that varies with water consumption). The company also proposed that sewerage rate be billed as 100% of water consumption and water charges.

6.3.2 The Office is of the view that, rates for each of the services provided by the company should be reflective of the costs involved in service delivery. Therefore the Office has to make a decision on the rates structure so that the viability of the company is not jeopardize or make consumers pay more than a reasonable price for the service. Consequently, it has decided that it will approve the proposed rate structure for a period of 15-months, until the company can generate sufficient data which would detail the costs involved in providing water and sewage service.

6.3.3 Service charge

DEML proposed a service charge of \$250 to cover fixed overheads such as billing and meter reading. The Office is of the view that the service charge should be set at a level that allows for reasonable cost recovery of the fixed overheads, but does not place a high burden on customers that have lower consumption levels. At this time, the Office has determined the service charge to be \$300. This rate allows the company to recover a significant part of their overheads while at the same time allow customers to benefit from efficient service delivery. The total revenue expected from service charge in the first year of operation is \$1.53M. This amount is deducted from the revenue requirement of \$14.42M to yield net revenue requirement of \$12.89M.

6.3.3.1 Determination 3

The Office has determined that the monthly service charge is \$300. This charge is independent of volume of water consumed.

6.3.4 Volumetric rate

The volumetric rate must be sufficient to cover any shortfall in revenue. The volumetric rate is derived from dividing the net revenue requirement by annual projected water consumption.

There is no data available to determine the actual consumption of the customers at Morris Meadows and this makes it difficult for the Office to set a

flat rate that reflect average consumption patterns. DEML initially assumed that each household will consume 27,000¹¹ liters on a monthly basis. However, given its experience with Vineyards Estate and Caribbean Estate, the company subsequently revised this projection downwards to 12,000 liters.

DEML currently provides water to Vineyards Estates, so the Office has examined this service area consumption pattern. The consumption profile of the National Water Commission was also examined in area that has similar demography to Vineyards Estates, Caribbean Estates and Morris Meadows¹². This data revealed that the average consumption for a residential customer is 15,000 liters monthly. The Office is of the view that it is more reasonable to use this data as a proxy for consumption.

6.3.4.1 With net revenue requirement of \$12.92M and estimated yearly consumption of 180,000 liters and a customer base of 427, the Office has determined that the volumetric rate is \$83.78 per 1,000 liters.

6.3.4.2 ***Determination 4***

A. The Office has determined that the volumetric rate is \$83.78 per 1,000 liters.

B. The Office has determined that sewage services will be billed at 100% of water charges.

6.3.5 **Price Adjustment Mechanism**

The PAM is an indexation mechanism that is applied to the base rate for water and sewage services to preserve the real revenue of the company. The PAM captures changes in Foreign exchange, consumer price index, and electricity charge.

6.3.5.1 ***Determination 5***

The Office has decided that there will be a PAM that will be applied to the monthly charges approved for DEML.

6.3.6 The Office determined rates are to be effective for a period of fifteen (15) months or such longer period as the Office may subsequently determine. DEML is required to submit at least one year of audited financial statements, with costs directly associated with each housing development identified, and data on consumption and production prior to the next review of the rates.

6.3.6.1 ***Determination 6***

¹¹ The company assumes that each household is comprised of 4 persons, and each person consumes 220 litres daily.

¹² White Water Meadows and Angels Estate consumption profile were examined.

The service charge and volumetric rate is set for a period of 15 months or such longer period as the Office may subsequently determine. DEML is to submit at least one year of audited financial statements and production and consumption data prior to the next review of the water and sewerage rates.

- 6.4 In addition to these determinations, DEML will be issued with a document outlining the Standard Terms and Conditions of Contract” within two months of the date of this Determination.
- (a) During the first year after the date of this Determination, DEML must develop a series of Customer Service information bulletins advising customers of the company’s procedures for making complaints, bill payment, disconnection policy, contact offices and telephone numbers, etc. This will be regarded as a work in progress during the 12 month period as the Office will expect DEML to eventually produce a Code of Practice for Customer Service.

Chapter 7: Quality of Service Standards

7.1 Guaranteed Standards

To ensure that service delivery to the residents does not fall below the minimum level, the following Guaranteed Standards shall come into effect 90 days after the effective date of this Determination:

Table 8: Office Determined Guaranteed Standards

Code	Guaranteed Standard	Mode of Compensation
GS1 – Connection of New Customers	DEML is required to connect all new customers, complete with working meters, where water supply is available at the property boundary, within 5 working days after signing the contract for connection.	Automatic
GS2 – Issue of First Bill	DEML must issue (print and mail/deliver) a bill to a customer based on a meter reading within 30 working days after the account is opened.	Claim
GS3(a) – Response to complaints - Acknowledgements	DEML must, within 3 working days acknowledge written customer complaints.	Claim
GS3(b) – Response to Complaints - Investigations	DEML must, within 15 working days of receipt of complaint, complete investigation and inform the customer of the results.	Claim
GS3(c) – Investigations involving 3rd party	DEML must, within 30 working days complete investigation involving 3 rd party.	Claim
GS4 – Wrongful Disconnection	DEML must, within 12 hours, reconnect any supply that the company inadvertently disconnected and a written apology extended.	Automatic
GS5 – Repair or Replacement of Faulty Meter	DEML must, within 10 working days after detection, repair or replace any malfunctioning meter.	Automatic
GS6 – Meter Readings	DEML must render a bill based on a meter reading each month.	Automatic
GS7 – Reconnection after Payment of Overdue Amount	DEML must, within 24 hours of receipt of all applicable payments (reconnection fee etc.) reconnect customers disconnected for debt.	Automatic
GS8 – Payment of Compensation	DEML must credit customer's account within one (1) billing period after a breach of any of the prescribed guaranteed standards. For the avoidance of doubt, if DEML does not compensate the customer within the specified time, this results in another breach.	Claim

7.2 A breach of any Guaranteed Standard will result in a compensatory payment to customers. This payment will be equivalent to four (4) times the service charge and should be credited by DEML to the affected account. DEML must submit bi-annual reports on its performance against the Guaranteed Standards. The report must be submitted within 30 business days of the end of each six months period of operation.

- 7.3 DEML must submit bi-annual reports on its performance against the Guaranteed Standards. Such reports must be submitted within 30 business days of the end of each six months period of operation. The Office will conduct an annual review of DEML's performance against these standards and at that time, will determine if any amendments to any of the standards or the mode of compensation is necessary.
- 7.4 In instances where it is apparent that DEML did not automatically credit the customer's account with the compensatory payment the customer has the right to appeal to the Office for further redress.

Chapter 8: Summary of Decision

In summary, the Office has made the following determinations:

- 1) The sewage and water rates is based on a two-tiered rate structure comprising of a fixed component, and a flat rate, which is based on consumption.
- 2) The service charge is \$300.
- 3) The variable component is a volumetric rate of \$83.78 per 1,000 liters.
- 4) Sewage rates are 100% of water rates.
- 5) A monthly PAM will be applied to the rates charged by DEML.
- 6) Initial connection fee of \$2,000 becomes payable at the signing of a service contract.
- 7) Reconnection fee is \$1,000.
- 8) Rates are set for a period of 15 months.
- 9) DEML must submit at least 1 year of audited financial statements and production and consumption data prior to the next review of the rates.
- 10) DEML must adhere to Guaranteed Standards as outlined above. Breach of any of these standards will result in a compensatory payment of four (4) times the service charge.
- 11) Within three months of the date of this Determination, DEML will be issued with a document outlining Standard Terms and Conditions of service deliver.
- 12) During the first year after the date of this Determination, DEML is to develop a series of Customer Service information bulletins advising customers of the company's procedures for making complaints, bill payment, disconnection policy, contact offices and telephone numbers.

The rates become effective on the 1st February 2009 and will remain effective for 15 months or for such longer period as the Office may determine.