

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF DELAWARE**

In the Matter of:

**THE APPLICATION OF ARTESIAN  
WASTEWATER MANAGEMENT, INC. FOR  
AUTHORITY TO INCREASE EXISTING  
RATES AND CHARGES FOR WASTEWATER  
SERVICE (FILED JANUARY 18, 2013)**

**PSC DOCKET NO.  
13-27WW**

**DIRECT TESTIMONY AND EXHIBITS OF  
HOWARD J. WOODS, JR., P.E.  
ON BEHALF OF THE  
ATTORNEY GENERAL OF THE STATE OF DELAWARE**

**Dated: June 17, 2013**

**Artesian Wastewater Management, Inc.  
PSC Docket Nos. 13-27WW  
Direct Testimony of Howard J. Woods, Jr., P.E.**

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1 **1. STATEMENT OF QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND ADDRESS.**

3 A. My name is Howard J. Woods, Jr. and my address is 138 Liberty Drive,  
4 Newtown, Pennsylvania 18940-1111.

5 **Q. BY WHOM ARE YOU EMPLOYED?**

6 A. I am an independent consultant; the Delaware Division of the Public Advocate  
7 (“DPA”) has engaged me in this matter. Due to the Public Advocate’s resignation  
8 and the Attorney General’s intervention, I am submitting this testimony on behalf  
9 of the Attorney General.

10 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**  
11 **PROFESSIONAL QUALIFICATIONS.**

12 A. I hold a Bachelor of Civil Engineering Degree from Villanova University (1977)  
13 and a Master of Civil Engineering Degree with a concentration in water resources  
14 engineering, also from Villanova University (1985). I am a registered professional  
15 engineer in Delaware, New Jersey, New York, Maryland, Pennsylvania and New  
16 Mexico. I am also licensed to perform RAM-W<sup>SM</sup> security assessments of public  
17 water systems. I am an active member of the American Society of Civil Engineers,  
18 the National Ground Water Association, the American Water Works Association,  
19 the Water Environment Federation and the International Water Association.

20 **Q. HAVE YOU PROVIDED TESTIMONY IN UTILITY MATTERS ON**  
21 **PRIOR OCCASIONS?**

1 A. Yes. I have testified in numerous rate setting proceedings and quality of service  
2 evaluations in matters before the public utility commissions in New Jersey, New  
3 York, Connecticut, Delaware, Pennsylvania and Kentucky.

4 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.**

5 A. A detailed description of my professional experience is provided in Appendix A  
6 of this Testimony. In summary, I have over 35 years experience in the planning,  
7 design, construction and operation of water and wastewater utility systems. I  
8 have worked for a Federal regulatory agency, a large investor-owned water and  
9 wastewater utility, a firm engaged in contract operations of municipally owned  
10 water and wastewater utilities, and in engineering and operational consulting for  
11 the water and wastewater industry. During my career, I have been responsible for  
12 all operations functions, including regulatory compliance, water production,  
13 distribution and maintenance services as well as wastewater collection and  
14 treatment.

15

1 **2. SCOPE AND PURPOSE OF TESTIMONY**

2 **Q. MR. WOODS, PLEASE DESCRIBE YOUR AREA OF RESPONSIBILITY**  
3 **IN THIS MATTER.**

4 A. I have been engaged to review the proposal by Artesian Wastewater Management,  
5 Inc. (hereafter "AWMI" or "Company") to to increase existing rates to customers  
6 and to make other tariff modifications. The AWMI rate proposal, as originally  
7 filed, requested an adjustment to rates that would increase the current flat rate per  
8 Equivalent Dwelling Unit ("EDU") from \$75 per month to \$98 per month. A  
9 subsequent supplemental filing made by the Company on May 31, 2013 reduced  
10 the requested rate to \$88 per month.

11 **Q. WHAT MATERIALS HAVE YOU REVIEWED IN DISCHARGING THIS**  
12 **ASSIGNMENT?**

13 A. I have reviewed the filings and responses to discovery requests in this matter  
14 along with the transcript of the public comment session held on May 6, 2013. In  
15 addition to these case materials, I also reviewed various Delaware Department of  
16 Natural Resources and Environmental Control ("DNREC") rules concerning on-  
17 site wastewater treatment and disposal systems and rules governing the control of  
18 water pollution.

1   **3.   SUMMARY OF FINDINGS AND CONCLUSIONS**

2   **Q.   HAVE YOU REVIEWED THE PETITIONER'S REQUEST TO**  
3   **INCREASE RATES CHARGED FOR WASTEWATER SERVICE?**

4   A.   Yes, I have.

5   **Q.   WHAT HAS THE PETITIONER REQUESTED IN ITS PRE-FILED**  
6   **TESTIMONY AND EXHIBITS?**

7   A.   AWMI has asked the Commission to increase its rates for service and to allow it  
8   to collect charges it believes to be necessary to recover the cost of operations and  
9   capital improvements to its systems.  AWMI's Supplemental Testimony is  
10   seeking an increase in revenues of \$215,123, which would result in an increase in  
11   the current flat rate tariff of \$75 per month to an adjusted rate of \$88 per month.  
12   This is a 17.3% rate increase.  The present AWMI tariff rate has been in effect  
13   since 2005 when the Company initially began operations.  In its original filing and  
14   in its Supplemental Testimony, the Company has requested a 5.16% rate of return  
15   on rate base and it has proposed to replace its book capital structure with a  
16   hypothetical capital structure reflecting a mix of 59.43% debt and 40.57% equity.

17   **Q.   DO YOU BELIEVE THAT THE COMPANY'S REQUEST FOR RATE**  
18   **RELIEF SHOULD BE GRANTED?**

19   A.   No.  AWMI has underestimated present rate revenues and its proposed Test  
20   Period operating expenses do not reflect normalized levels of expenses.  In

1           addition, the Company has requested that an allowance for cash working capital  
2           be reflected in rate base. The requested allowance is not appropriate because the  
3           Company bills in advance for service. In addition, the Company has requested a  
4           rate of return based on an equity cost rate of 10.0% while a rate of 9.75% would  
5           be an appropriate outcome.

6   **Q.    WHAT IS YOUR RECOMMENDATION IN THIS MATTER?**

7   A.    It is my opinion that only a nominal increase in the current monthly rate of \$75  
8           can be justified at this time. The Company's Supplemental Testimony identified  
9           a significant increase in the number of EDUs that will be billed annually during  
10          the period of time that rates resulting from this proceeding will be in effect. The  
11          significant increase in the annual number of EDUs that will be billed by the  
12          Company and reasonable adjustments to normalize operating expenses should be  
13          reflected in the calculation of a revised rate. If the Commission accepts the  
14          Company's proposed hypothetical capital structure, which is something that I  
15          recommend, but uses a more appropriate equity cost of 9.75%, the rate should be  
16          increased only slightly, to \$75.73 per month per EDU. This is an increase of  
17          0.98%.

18   **Q.    ARE YOU RECOMMENDING ANY CHANGES TO THE FLAT RATE**  
19          **STRUCTURE OF THE CURRENT AWMI TARIFF?**

20   A.    No. The current uniform flat rate structure should be maintained.

1 **4. OPERATING REVENUES**

2 **Q. HAVE YOU DEVELOPED AN ESTIMATE OF REVENUES AT**  
3 **PRESENT RATES?**

4 A. Yes. In Exhibit 3, Schedule 6, dated May 31, 2013, the Company developed the  
5 annualized number of EDUs that will be billed in Exhibit 3, Schedule 6  
6 presented in Mr. Valcarenghi's Supplemental Direct Testimony. Schedules  
7 HJW-1 and HJW-2 show the development of present rate revenues for AWMI. I  
8 have calculated present rate revenues at \$1,849,339. This amount includes  
9 revenues derived from the provision of service to 1,095 customers who will be  
10 billed on the basis of a flat rate per EDU. I have accepted the Company's  
11 estimate of the number of EDUs that will be billed annually. At 14,016 EDU's  
12 per year and at the current rate of \$75 per month, the Company will generate  
13 annual flat rate revenues of \$1,051,200. This amount is shown in Schedule  
14 HJW-1.

15 In addition, the Company will obtain Other Revenues derived from  
16 developer subsidies and guarantees, inspection fees, late payment fees and  
17 purchase discounts. I believe it is most appropriate to normalize other revenues  
18 using an averaging technique as I have shown in Schedule HJW-2. It is  
19 important to recognize that the Company is anticipating significant growth  
20 within the areas in which it physically provides service. The Company's  
21 responses to DPA-29 show a total of 2,974 customers at build-out of the  
22 communities it now serves, while the response to DPA-23 shows 1,075

1 customers at April 29, 2013. In other words, the Company is now serving only  
2 36% of the customers it expects to serve in the nine communities that make up its  
3 present day service area. In each case, the Company has entered into a service  
4 agreement with the developer of these communities. These agreements  
5 recognize that the cost of providing wastewater service requires operating  
6 subsidies from the developer during the early stages of development to maintain  
7 fair and reasonable rates. While many of these agreements are due to expire in  
8 the coming years, it is reasonable to expect that the developers and the Company  
9 will negotiate appropriate extensions, as in the case of the Beaver Creek  
10 development, to maintain a fair relationship that will protect existing  
11 homeowners from unstable rate fluctuations during the actual build-out period.  
12 Because it is likely that rates set in this proceeding will be in effect for  
13 approximately two years before the Company seeks another review of its rates, it  
14 is appropriate to consider the recent actual experience with Other Revenues. I  
15 have proposed an average based on the actual results shown in the Company's  
16 Exhibit 1, Schedule 3, page 4 and the Company's response to DPA-30. I  
17 recommend a total amount of Other Revenues of \$798,139 as shown on Schedule  
18 HJW-2

19 The total annual revenue, including flat rate revenues and other revenues,  
20 is \$1,849,339 as shown on Schedule HJW-1 .

21 **Q. HOW DOES THIS COMPARE TO THE COMPANY'S ESTIMATE FOR**  
22 **PRESENT RATE REVENUES?**

1 A. The Company's Supplemental Testimony and Schedules show total annual  
2 operating revenues at present rates of \$1,762,424. This amount includes  
3 \$1,017,337 in flat rate revenues and \$745,087 in Other Revenues.<sup>1</sup> Flat rate  
4 revenues resulting from the billing of 14,016 EDUs per year at \$75 per month  
5 per EDU will amount to \$1,051,200, or \$33,863 more per year than the amount  
6 shown in the Company's schedules. By normalizing Other Revenues as shown  
7 in Schedule HJW-2, I have reflected an additional \$53,052 per year above the  
8 amount shown by the Company in its schedules. The difference between the  
9 Company's estimate of present rate revenues and the amount I have presented in  
10 Schedule HJW-1 is \$86,915 per year.

11

12 **5. OPERATING & MAINTENANCE EXPENSES**

13 **Q. HAVE YOU REVIEWED THE COMPANY'S CLAIM FOR OPERATING**  
14 **& MAINTENANCE ("O&M") EXPENSES IN THIS PROCEEDING?**

15 A. Yes. The Company's filing and its Supplemental Testimony report actual Test  
16 Year expense for the twelve months ending September 30, 2012. The Company  
17 then makes adjustments to the Test Year level of expenses to arrive at a Test  
18 Period level of expense. The partially-projected Test Period is the 12 months  
19 ending June 30, 2013. The Company's projected Test Period total O&M  
20 expenses amount to \$1,427,002.<sup>2</sup> The Company's actual expenses for 12 months

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<sup>1</sup> Company Exhibit 1, Schedule 3, page 3 as revised May 31, 2013.

<sup>2</sup> Company Exhibit 1, Schedule 3, page 3 as revised May 31, 2013.

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1 ending April 30, 2013, only two months prior to the close of the projected Test  
2 Period, totaled \$1,363,980.<sup>3</sup> The Test Year provides a snapshot in time of  
3 expenses actually incurred by the Company. However, we must recognize that  
4 AWMi is a small company serving fewer than 1,100 wastewater customers in  
5 total. Normal periodic fluctuations in expenses that would be unnoticeable in a  
6 much larger company's operations could be significant with respect to the  
7 challenge of setting fair rates for a small company such as this. Therefore, the  
8 recent history of expenses incurred in providing service should be reviewed and  
9 rates should be set on a normalized level of expense.

10 **Q. HAVE YOU MADE ANY ADJUSTMENTS TO AWMi'S PROPOSED**  
11 **LEVEL OF O&M EXPENSES?**

12 A. Yes. I am recommending a \$94,999 reduction in the proposed Test Period O&M  
13 expense. This is the difference between the normalized annual O&M expense  
14 level of \$1,332,003 that I have developed on Schedule HJW-3 and the  
15 Company's proposed Test Period level of O&M expense of \$1,427,002.

16 **Q. PLEASE DESCRIBE HOW YOU DEVELOPED YOUR ESTIMATE OF**  
17 **NORMALIZED O&M EXPENSE.**

18 A. Generally, for each item of expense shown on Schedule HJW-3, I set the  
19 normalized level of expense as the median value of the actual expenses incurred  
20 by the Company in providing service for the years 2009 through 2012. In order  
21 to have a sufficient number of additional data points to review in this analysis, I  
22 substituted the Test Year Actual Expenses for 12 months ending September 30,

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<sup>3</sup> Company response to DPR-74.

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1           2012 and the actual expenses for 12 months ending April 30, 2013 for the  
2           booked 2012 calendar year expenses. I then made adjustments to several items  
3           to reflect known and measureable changes in the recent pattern of actual  
4           expenses.

5   **Q.   PLEASE EXPLAIN YOUR ESTIMATE FOR PAYROLL EXPENSE.**

6   A.   I used the median value for payroll expense for the years 2009 through 2011, the  
7           Test Year ending September 30, 2012 and actual year ending April 2013. I  
8           believe this reflects the aggregate result of the Company's decision to assign  
9           labor to specific tasks in providing service to AWMI customers and the wages  
10          paid to its employees for that service. It is important to recognize that AWMI  
11          has no employees. All work done to provide service to AWMI customers is  
12          performed by employees of other Artesian Resources entities. Thus, the total  
13          payroll cost incurred in providing wastewater service is the result of management  
14          decisions to assign work and the wages paid to the individual employees  
15          assigned to the task. As a result, I believe the median value of actual payroll  
16          expenses incurred in recent periods properly reflects the level of expense likely  
17          to be incurred while rates resulting from this proceeding are in effect.

18   **Q.   DID YOU ESTIMATE EXPENSES USING SIMILAR NORMALIZATION**  
19          **CALCULATIONS FOR OTHER ITEMS OF EXPENSE SHOWN ON**  
20          **SCHEDULE HJW-3?**

21   A.   Yes. I used the median value of actual expense incurred for the same periods for  
22          Sludge Removal, Chemicals, Materials & Supplies, Contractual Services, and  
23          Other expenses. In estimating the normalized level of expense likely to be

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1 incurred for Benefits, Purchased Power, Land Rent, Customer Accounts,  
2 Transportation, and Administrative & General expense, I felt that additional  
3 adjustments were appropriate.

4 **Q. PLEASE EXPLAIN YOUR NORMALIZED EXPENSE FOR BENEFITS.**

5 A. For Benefits, I used the actual 12-months ending April 30, 2013 level of expense  
6 of \$207,499. I believe that this level of expense reflects what is fixed, known  
7 and measureable. The Company offered testimony regarding the general level of  
8 benefits expenses and how these expenses may be increasing nationally. Their  
9 testimony did not point to a specific known increase in costs that it would likely  
10 incur, say for a specific health care contract or a pension obligation, for any of its  
11 actual benefits programs. In addition, as in the case of labor, the expense booked  
12 to AWMI is the result of corporate allocations in part driven by the same  
13 decisions to assign workers to service AWMI properties. I did not feel that the  
14 median value of expense would be appropriate in this case because the median  
15 value would represent a decrease of approximately \$7,000 per year in the level of  
16 expense. While I believe the Company's general testimony regarding national  
17 trends in benefits costs increases lacks specificity for the circumstances  
18 applicable to AWMI, a calculation showing a significant reduction in this  
19 expense cannot be supported. The amount that I have recommended for the  
20 Benefits cost represents 40% of the normalized level of Payroll expense and this  
21 percentage is comparable to the relationship between Payroll and Benefits  
22 actually incurred for recent periods.

23 **Q. PLEASE EXPLAIN YOUR ESTIMATE FOR PURCHASED POWER.**

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1 A. In wastewater systems, the total flow arriving at a wastewater plant is a  
2 combination of sanitary wastewater discharged from private building  
3 connections and extraneous storm water and groundwater flows entering the  
4 system. The latter is often referred to as “Inflow and Infiltration.” Purchased  
5 power costs for pumping and treatment (e.g., aeration) will vary with total flow.  
6 I developed a linear relationship between the number of customers served by the  
7 system, average annual rainfall and the annual expense for Purchased Power.  
8 This relationship will allow the normal level of expense for Purchased Power to  
9 be predicted assuming the Company continues to serve 1,095 customers and  
10 rainfall occurs at a normal rate for Sussex County. These calculations are shown  
11 on Schedule HJW-4. Using this linear trend analysis, I have estimated the annual  
12 Purchased Power expense to be \$72,960. This compares to the Company’s  
13 estimate of \$75,000.<sup>4</sup>

14 **Q. PLEASE EXPLAIN THE ADJUSTMENT YOU MADE TO LAND RENT.**

15 A. In its response to DPA-44 and again in Mr. Valcarenghi’s Supplemental  
16 Testimony,<sup>5</sup> the Company identified an expense that was inadvertently included  
17 as an above the line expense in its calculation of total O&M. Consistent with the  
18 Company’s adjustment, I have removed the total amount of \$40,665 from the  
19 computation of Total O&M expense by setting the recommended value for Land  
20 Rent at zero dollars on Schedule HJW-3.

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<sup>4</sup> Company Exhibit 1, Schedule 3B, page 8 as revised May 31, 2013.

<sup>5</sup> Supplemental Testimony of D. Valcarenghi, p. 3, lines 9-12.

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1 **Q. PLEASE EXPLAIN YOUR RECOMMENDATIONS FOR CUSTOMER**  
2 **ACCOUNTS AND TRANSPORTATION.**

3 A. In both of these cases, I used the actual Test Year level of expense to project the  
4 pro forma level of expense. The history for these expense items is not adequate  
5 to produce meaningful results using a normalization analysis. A normalization  
6 analysis using the median value of historical expenses produces reliable results  
7 when there is consistency in the sample data. In these two cases, an arithmetic  
8 mean would represent a result that is inexplicably below the Company's recent  
9 experience. The Test Year level of expense represents a recent level of actual  
10 expense that is fixed, known and measureable; thus, the annual amounts of  
11 \$25,589 and \$80,144 should be used to estimate the costs for Customer Accounts  
12 and Transportation, respectively, for rate setting purposes.

13 **Q. PLEASE EXPLAIN YOUR ESTIMATE FOR ADMINISTRATIVE &**  
14 **GENERAL EXPENSE.**

15 A. In developing this estimate, I used the median value for the years 2009 through  
16 2011, the Test Year and the actual 12-months ending April 30, 2013 period.  
17 However, I recognize that the median value does not include any expenses  
18 associated with the prosecution of rate cases. During the period used to develop  
19 the pro forma estimate, the Company had not prosecuted any rate proceedings.  
20 In footnote 6 on Schedule HJW-3, I estimated the likely cost of rate case expense  
21 and normalized this over a two-year period. I note that the Company had  
22 overestimated the cost of DPA and Staff consultants in this matter and made an  
23 appropriate adjustment to the total. The addition of normalized rate case expense

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1 to the median value for Administrative & General expense results in a pro forma  
2 total of \$162,495.

3

4 **6. RATE BASE**

5 **Q. HAVE YOU DEVELOPED ESTIMATES OF RATE BASE FOR AWM?**

6 A. Yes. I have developed an estimate of rate base and this calculation is shown on  
7 Schedule HJW-5. In reviewing the Company's Supplemental Testimony, I  
8 found that I agree with the Company's calculation of all rate base items with the  
9 exception of the allowance for Cash Working Capital.

10 **Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO CASH WORKING  
11 CAPITAL.**

12 A. The Company proposed to use the "1/8<sup>th</sup> Method" to develop an allowance for  
13 cash working capital. The "1/8<sup>th</sup> Method" is a common approach to estimating a  
14 small utility company's cash working capital requirement in lieu of preparing a  
15 detailed lead-lag study of the company's revenues and expenses. Lead-lag  
16 studies are often time consuming and quite costly, so many jurisdictions have  
17 adopted the use of the "1/8<sup>th</sup> Method" as a reasonable surrogate. The "1/8<sup>th</sup>  
18 Method" estimates cash working capital requirements as 1/8<sup>th</sup> of the total O&M  
19 expenses. This produces an estimate of cash working capital equivalent to  
20 approximately 45 days of expenses and allows for the delay in receiving revenue

1 to cover those expenses. The method is intended to address the needs of  
2 companies that bill quarterly in arrears.

3 AWMJ bills for services in advance on a monthly cycle. Therefore, it is  
4 not appropriate to use the "1/8<sup>th</sup> Method" in this case. By billing for services in  
5 advance, the Company's actual cash working capital requirement could be near  
6 zero or could even be negative. The only way to determine this for sure is to  
7 prepare a lead-lag study. For ratemaking purposes in this proceeding I have  
8 recommended that the cash working capital allowance be reduced to zero and  
9 this is reflected in Schedule HJW-5. This adjustment reduces rate base by  
10 \$183,122 to a revised total of \$4,213,097.

11  
12 **7. CAPITAL STRUCTURE AND COST OF CAPITAL**

13 **Q. HAVE YOU REVIEWED THE COMPANY'S RECOMMENDATIONS**  
14 **REGARDING ITS CAPITAL STRUCTURE?**

15 A. Yes. The Company is proposing to substitute a hypothetical capital structure for  
16 its book capital structure. Its book structure is heavily weighted toward debt; in  
17 fact, debt accounts for 75.50% of the invested capital. By comparison, the  
18 Company has proposed a series of calculations to develop a hypothetical capital  
19 structure that lowers the amount of debt and equity reflected in the total amount.  
20 The Company's calculations remove an amount associated with investments in

1 property held for future use and the reduction is applied proportionately to debt  
2 and equity. The resulting capital structure is 59.43% debt and 40.57% equity.

3 **Q. DO YOU AGREE THAT A HYPOTHETICAL CAPITAL STRUCTURE**  
4 **SHOULD BE USED IN THIS MATTER?**

5 A. Yes. AWMI is a small company that has made investments in utility plant under  
6 the terms and conditions of a series of developer agreements. Only slightly more  
7 than one-third of the anticipated customers have actually been connected to the  
8 Company's systems, and this forces the Company to rely only partially on  
9 revenues for service to pay its operating expenses, interest and develop a return  
10 for its shareholder. One of the developer agreements has expired and others are  
11 nearing the end of their terms. Taking these issues into consideration, it is my  
12 opinion that AWMI would have great difficulty borrowing money and raising  
13 capital if it were a stand-alone entity existing outside of the Artesian Resources  
14 group of companies. A capital structure weighted so heavily toward debt (e.g.,  
15 75.50%) would only make it more difficult for the Company to raise funds. Such  
16 a structure is not sustainable and should not be used for rate setting purposes.

17 **Q. WHAT IS A TYPICAL UTILITY CAPITAL STRUCTURE?**

18 A. Typical utility systems maintain a capital structure that is in the range of 60% debt  
19 to 40% equity to 50% debt to 50% equity. In this band, companies can generally  
20 demonstrate the financial strength to borrow at competitive rates while  
21 maintaining a normal equity cost rate.

1     **Q.    IN CONSIDERING HYPOTHETICAL CAPITAL STRUCTURES FOR**  
2     **AWMI, WHAT ALTERNATIVES DID YOU CONSIDER?**

3     A.    In developing a hypothetical capital structure for AWMI, it would be logical to  
4           substitute Artesian Resources Corporation's capital structure or to substitute  
5           Artesian Water Company's capital structure for the AWMI book structure. In its  
6           response to DPA-51, the Company provided the actual capital structures for  
7           Artesian Resources and Artesian Water. If either of these were substituted for the  
8           hypothetical structure proposed by AWMI in this case, the weighted cost of  
9           capital would be higher than what was actually proposed by the Company. In  
10          additional to these two options, I also considered the possibility of simply  
11          removing the debt associated with the non-utility plant investments. However,  
12          this would not alter the relationship of debt and equity in a favorable way. In fact,  
13          if this were done, the debt would be reduced to 31.74% while equity would  
14          increase to 68.26% of the capital. Not only would this represent a ratio outside of  
15          the desired range, it would also produce the highest overall weighted cost of  
16          capital for this Company.

17    **Q.    WHAT DID YOU CONCLUDE FROM THIS ANALYSIS?**

18    A.    It is my conclusion that the Company's proposed capital structure is fair and  
19           reasonable. I have shown a comparison of the book capital structure to the capital  
20           structure that would result from removing non-utility plant interest alone and the  
21           Company's proposed capital structure in Schedule HJW-6.

1 Q. ARE YOU RECOMMENDING ANY ADJUSTMENTS TO THE COST  
2 RATES FOR DEBT OR EQUITY?

3 A. I have accepted the debt cost proposed by the Company but I recommend that the  
4 equity rate be reduced to 9.75%.

5 Q. WHY ARE YOU REDOMMENDING A LOWER EQUITY COST RATE?

6 A. The lower rate of 9.75% is reflective of recent rate orders issued by the  
7 Commission with respect to equity cost.

8 Q. WHAT IS THE WEIGHTED COST OF CAPITAL RESULTING FROM  
9 THE USE OF THE RECOMMENDED CAPITAL STRUCTURE AND THE  
10 LOWER EQUITY COST RATE YOU HAVE RECOMMENDED?

11 A. The weighted cost rate is 5.05%, compared to the Company's request of 5.16%.  
12 The calculation of the weighted cost rate is shown on Schedule HJW-6.

13

14 **8. REVENUE REQUIREMENT AND TARIFF RATE**

15 Q. HAVE YOU CALCULATED THE REVENUE NEEDED TO GIVE THE  
16 COMPANY THE OPPORTUNITY TO EARN A 5.05% RATE OF  
17 RETURN?

1 A. The calculation of the revenue needed to produce this rate of return is shown on  
2 Schedule HJW-7. The flow-through impact of Income Taxes and Taxes Other  
3 Than Income are calculated on Schedules HJW-8 and HJW-9, respectively. In  
4 order to have an opportunity to earn a 5.05% rate of return on rate base, the  
5 Company will need to generate total revenues of \$1,851,639. Of this amount,  
6 Other Revenues, which I calculated on Schedule HJW-2, represent \$798,139.  
7 These revenues are a function of developer agreements, inspection fees and other  
8 activities not reflective of bills rendered for services provided. The flat rate  
9 revenues represent bills for service, which will need to generate \$1,061,500 per  
10 year.

11 **Q. WHAT IS THE MONTHLY RATE REQUIRED TO GENERATE THE**  
12 **FLAT RATE REVENUE YOU BELIEVE IS NEEDED?**

13 A. The flat rate revenue requirement of \$1,061,500 is divided by 14,016 annual  
14 EDUs billed to arrive at a rate of \$75.73 per month per EDU. This calculation is  
15 shown on Schedule HJW-10.

16 **Q. DID YOU CONSIDER ANY TARIFF STRUCTURES OTHER THAN THE**  
17 **CURRENT FLAT RATE STRUCTURE USED BY THE COMPANY?**

18 A. Yes. Sewer bills are often calculated volumetrically using the amount of drinking  
19 water used by individual customers as a surrogate for the amount of wastewater  
20 returned to the sanitary sewer system. Tariffs that are volume-based are normally

1 composed of a fixed service charge designed to recover fixed expenses and a  
2 volumetric charge set to capture the variable costs of providing service.

3 **Q. DO YOU THINK A VOLUMETRIC RATE STRUCTURE SHOULD BE**  
4 **ADOPTED BY AWTMI?**

5 A. No, not at this time.

6 **Q. PLEASE EXPLAIN WHY YOU BELIEVE IT IS APPROPRIATE TO**  
7 **MAINTAIN THE CURRENT FLAT RATE TARIFF.**

8 A. There are several reasons. First, the Company's rates are heavily subsidized by  
9 developer guarantees. This is necessary because investments have been made in  
10 plant and operating costs have and are being incurred to satisfy minimum staffing  
11 requirements and environmental regulations even though the full complement of  
12 planned customers are not yet being served. As I have noted earlier, only about  
13 36% of the customers anticipated at build-out are now connected to the systems.  
14 In a typical developer system, 80% to 90% of the costs incurred to provide service  
15 have little to do with the volume of wastewater discharged to the system by  
16 individual customers. When a system is at a low percentage of its intended build  
17 out capacity, the fixed costs can be even higher. As a result, there would be little  
18 to no benefit to be derived from switching to a volume based rate structure.

19 Second, in order to switch to a volume-based tariff, the Company would  
20 need to have universal access to drinking water consumption data for all of its  
21 customers. The responses to DPA-60, DPA-61 and DPA-62 demonstrate that for

1 three of the Company's nine service areas, this data does not exist. The data  
2 could be acquired at a cost. To the extent that all customers in Oakwood Village,  
3 the Reserves at Lewes and Windstone are provided metered water service by  
4 another utility, AWMI could purchase the meter readings. It should be noted that  
5 water meter readings by other utilities could be quarterly readings as opposed to  
6 monthly readings. If this is the case, wastewater bills in two out of every three  
7 months would need to be estimated even if the quarterly readings were purchased.  
8 In cases where AWMI customers receive water from a private well, arrangements  
9 could be made by AWMI to install a water meter on the well for the sole purpose  
10 of developing a sewer bill. Where this has been done elsewhere, the cost of the  
11 meter installation and the cost of collecting the readings is properly reflected in  
12 the calculation of the company's revenue requirement. While a switch could be  
13 made to volume-based billing, the cost to generate volume-based bills would be  
14 higher, which would add to the revenue requirement.

15 Third, volume-based bills are problematic in communities that are not  
16 occupied year-round. Certain costs flow from the need to make capacity available  
17 for the peak period of use. For example, in communities that are primarily  
18 occupied in the summer months, high flows are generated by the seasonal  
19 population and these flows must be accommodated by the sewer collection  
20 network, the treatment plants and the treated water disposal system. In volume-  
21 based tariffs, these costs can only be recovered through the fixed service charge  
22 and the volume charge incurred when the units are occupied. This causes the  
23 fixed service charges to be inflated to recover the fixed costs over a shorter period

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1 of time and it also compresses the variable costs (e.g., for power, chemicals and  
2 waste disposal) into the low number of gallons treated seasonally over the course  
3 of the year. If such adjustments are not made in the rate calculation, customers  
4 who occupy their residences year-round are placed at a severe disadvantage over  
5 those who only reside seasonally.

6 While these are a few of the most significant issues associated with  
7 switching from a fixed flat rate to a volumetric rate, it is apparent that these issues  
8 have not been fully investigated, so it is impossible to identify the full cost impact  
9 of altering the tariff structure. In any change of this nature, some customers will  
10 benefit while others will be harmed. At this point, I see no compelling reason to  
11 alter the tariff design.

12

13 **9. TARIFF PROVISIONS**

14 **Q. DID YOU REVIEW THE COMPANY'S PROPOSED CHANGES TO ITS**  
15 **TARIFF?**

16 A. Yes, I did.

17 **Q. WHAT IS YOUR POSITION ON THOSE PROPOSED CHANGES?**

18 A. With respect to the magnitude of the late payment fee, the proposal is consistent  
19 with Artesian Water's tariff, so I accept that proposed change.

1           With respect to the Company’s proposal to terminate water service for  
2           nonpayment of wastewater service bills, this Commission’s regulations prohibit a  
3           utility from discontinuing service for failure to pay for any other public utility  
4           service. 26 *Del. Admin. Code* §2001.6.6.3. Therefore, this proposed revision  
5           cannot be approved. With that, AWMI’s proposed \$50 turn on/turn off fee is  
6           unnecessary because as a practical matter AWMI will not be able to terminate  
7           wastewater service.

8           Finally, with respect to the Company’s proposal for consolidated billing, I  
9           note that AWMI has requested the Commission to carve this particular issue out  
10          of this case and consider it separately on an expedited basis. In the event the  
11          Commission does not sever this issue from this case, consolidated billing will  
12          make keeping track of payment issues much easier where Artesian Water and  
13          AWMI service the same customers. The customer will get one bill with both  
14          charges. Currently, Artesian Water provides service to all but three developments  
15          served by AWMI (Oakwood Village, Reserves at Lewes and Windstone); for  
16          these communities, consolidated billing is obviously not an option. If bills are  
17          consolidated, language regarding the posting sequence should be included in the  
18          tariff. Partial payments will come in, and when they do, the manner in which they  
19          will be applied should be set out clearly in the tariff. We propose the following,  
20          which is based on the payment posting sequence approved for Delmarva:

21                   Payment Posting Sequence

22  
23                   When the Company is providing consolidated billing for the combined  
24                   water and wastewater service, and the Customer remits a partial payment  
25                   to the Company, the payment shall be applied as follows:

1  
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13

1. Any existing arrearages for either water or wastewater service, by vintage.
2. Arrears by vintage priority for water or wastewater service charges, where applicable. For a water service arrearage and a wastewater service arrearage with the same vintage, the water service arrearage has priority over the wastewater service arrearage.
4. Current charges for the Company's water service.
5. Current charges for the Company's wastewater service.

14 **Q. DOES THIS COMPLETE YOUR TESTIMONY AT THIS TIME?**

15 A. Yes it does.

1

2

**APPENDIX A - Qualifications**

3

**Of**

4

**Howard J. Woods, Jr., P.E.**

## KEY EXPERIENCE

Mr. Woods has over 36 years experience in water and wastewater utility engineering and operations. In his career he has worked for US EPA, engineering consultants and in numerous senior engineering and operational roles at a large investor-owned utility. His experience is well rounded, covering all aspects of public water and wastewater operations and management including outsourcing, acquisitions, maintenance, water production, filtration, distribution, water quality, wastewater collection and treatment, regulatory compliance and safety.

Mr. Woods managed numerous water and wastewater management contracts. He has assisted clients in outsourcing management activities and transferring ownership of complete utility systems. He has advised clients on alternative contracting approaches and reduced operating costs by renegotiating plant operations contracts. He has helped clients reduce operating expenses and he has provided expert testimony in construction arbitrations, contamination incidents and utility rate and service proceedings.

## EDUCATION

Masters of Civil Engineering, Water Resources – Villanova University  
Bachelor of Civil Engineering (cum laude) – Villanova University

## ACCOMPLISHMENTS

- Directed and managed the procurement process leading to the sale of a municipal wastewater system in Southeastern Pennsylvania. The sale of the Upper Dublin Township Sanitary Sewer System will yield \$20,000,000 for a system serving approximately 8,000 connections and having annual revenues of \$3,000,000. Advised the Township on alternative outsourcing and contracting approaches, reduced interim operating expenses by 30% prior to the sale by renegotiating the plant operations contract.
- Prepared an analysis of ownership alternatives for Lower Makefield Township's sanitary sewer collection system. Managed a procurement process that lead to the receipt of a \$17 million bid for the potential sale of a system serving 10,700 residential and commercial customers.
- Assessed an existing public private partnership contract and future contracting alternatives for the Jersey City Municipal Utilities Authority (JCMUA). Recommended alternative contract terms and assisted JCMUA in negotiating a new ten-year operations agreement saving approximately \$3,000,000 per year.
- Assisted Greater Ouachita Water Company, a non-profit Louisiana water and sewer utility, in evaluating operating contract alternatives. Provided assistance in identifying qualified operators to be invited to bid a multi-year full-service operating contract. Assisted in evaluating bids and in contract negotiations.

## **ACCOMPLISHMENTS (CONTINUED)**

- Completed an independent assessment of ownership and operating alternatives for the Township of Sparta water utility. The study evaluated current operating and financial conditions of the utility and considered two alternative service delivery approaches: contract operation and a sale of the system to an investor-owned utility.
- Completed an assessment of the financial and operating impacts of a proposal by a Pennsylvania municipality to dissolve its municipal water and sewer authority. The authority served multiple political subdivisions and dissolution would have resulted in regulation by the Pennsylvania Public Utility Commission. The additional regulatory burdens identified and limitations on municipal financing capacity resulted in a recommendation to retain authority ownership and operations.
- Completed an analysis of ownership alternatives for the Bristol Township Sewer Department. Reviewed capital needs and financing arrangements, rate structure and system revenues, operational costs and regulatory compliance issues. Assessed potential interest in the acquisition of the system by other municipal and investor-owned entities and assessed the possible impact of a sale on rates and service quality. The study recommended retention of the system by the Township and offered recommendations to reduce costs and improve staffing levels.
- Completed the assessment of a potential water utility acquisition by a Pennsylvania Municipal Authority. Assisted the Authority in developing a bid proposal for the acquisition and assessing the impact on revenue requirement and consumer rates resulting from the acquisition.
- Completed an evaluation of the revenue requirement associated with the decommissioning of a wastewater treatment plant and the diversion of wastewater to a regional treatment works for the North Wales Water Authority. Assessed the rate impact to customers of potentially retaining and improving an existing wastewater treatment plant and the rate impact of joining a regional treatment system. The evaluation supported the decision to regionalize the sewage treatment function.
- Assisted the Banco Gubernamental de Fomento para Puerto Rico, Autoridad para el Financiamiento de la Infraestructura de Puerto Rico and PricewaterhouseCoopers in developing a new operating contract for the Puerto Rico Aqueduct and Sewer Authority (PRASA). The contract was developed, bid and awarded in less than six months, cutting the normal procurement time by nearly two-thirds. The value of the contract was \$300 million per year.
- Completed an independent assessment of the planning and engineering decision making for a major water treatment plant renovation project undertaken by Aquarion Water Company of Connecticut in Stamford Connecticut. Evaluated process selection decisions, project sizing and regulatory compliance issues and testified before the Connecticut Department of Public Utility Control on the findings of the evaluation.

## ACCOMPLISHMENTS (CONTINUED)

- Completed audits of water production operations and water quality management functions at Aquarion Water Company of Connecticut, Aquarion Water Company of Massachusetts and Aquarion Water Company of New Hampshire. Assessed operational procedures and staffing levels, reviewed risk management plans including emergency response plans and dam safety programs, evaluated programmed and preventative maintenance systems and developed recommendations to assist the Company in lowering the cost of service while reducing risk and improving reliability.
- Completed an audit of the watershed and environmental management functions at Aquarion Water Company of Connecticut. Assessed watershed management, monitoring and operational procedures, reviewed compliance tracking systems, reviewed risk management strategies and developed recommendations to assist the Company in reducing risk and improving reliability and watershed protection efforts.
- Completed a management audit of the water distribution function at Aquarion Water Company of Connecticut. Evaluated system monitoring and maintenance practices, assessed the impact of the use of contract maintenance and construction services to reduce Company workforce levels. Developed recommendations to improve the Company's programmed and preventative maintenance systems, corrosion control procedures and non-revenue water control programs.
- Assisted Greater Ouachita Water Company, a Louisiana non-profit water and sewer utility, in identifying the cause of water quality complaints resulting from poor color removal filtration processes. Recommended improvements to minimize capital modifications of the chemical feed, filter backwash and spent wash water treatment systems.
- Completed a Vulnerability Assessment for a municipally-owned public water system in northern New Jersey. Organized, planned and conducted the assessment using the RAM-W<sup>SM</sup> methodology. Evaluated existing physical protection systems at utility facilities, developed threat assessments and adversary sequence analyses, prepared recommendations to reduce risk.
- Completed an energy management evaluation for the Elmira (NY) Water Board and provided operator training on energy management strategies. Recommendations from the study allowed the client to reduce energy expenses by 30% through a series of operational modifications.
- Completed an energy management audit of the Pittsburgh Water and Sewer Authority and identified strategies for reducing power consumption. The results of this investigation provided the foundation for the Authority and its contract manager (U.S. Water L.L.C.) to develop and implement more effective maintenance and operations procedures to reduce energy costs.
- Served as an expert witness in a matter involving the diversion of service by a large commercial customer of Atlantic City Municipal Utilities Authority (ACMUA). Statistically analyzed customer water use and billing records by relating water use variables (e.g. weather, occupancy rates, and restaurant output) to recorded consumption. Identified periods of service diversion and assisted ACMUA in the collection of revenues and penalties due.

## ACCOMPLISHMENTS (CONTINUED)

- Served as an expert witness in a matter involving excess billing of a large commercial customer of a New Jersey public utility. Statistically analyzed usage patterns over a ten-year period and identified periods of excess billing. Assisted the customer in negotiating a \$50,000 settlement of the dispute.
- Developed a model of the major water resources facilities in the Passaic, Pompton, Ramapo and Hackensack River Basins that allows the calculation of the safe and dependable yield of the Wanaque/Monksville, Point View and Oradell Reservoir systems under varying drought conditions. The model is being used by Passaic Valley Water Commission to evaluate long-term water supply management strategies and to plan for future water supply needs.
- Assisted New York City Department of Environmental Protection in compiling a report on the estimated safe yield of the City water supply reservoir system. A current assessment of safe yield was required by agreement of the Parties to the 1954 US Supreme Court Decree governing the use and export of water from the Delaware River Basin. Provided additional consulting assistance on plans to assure system reliability during planned repairs to the Roundout-West Branch Tunnel, an aqueduct that transports up to 800 million gallons of water per day to the City from the Delaware Basin reservoir system.
- Developed an analysis of the costs of the Hickory Log Creek Reservoir and the yield sharing arrangements between the City of Canton and the Cobb County-Marietta Water Authority. Developed recommended methods to assess the impact of US Army Corps of Engineers operating policies on future operating and capital cost allocations.
- Prepared a long-range water supply needs forecast for the Passaic Valley Water Commission. Analyzed water use patterns within the Commission's retail service area and for over two-dozen large contract customers. Produced population forecasts for the service area and individual water demand forecasts for each contract sale-for-resale customer using statistical and numeric forecasting techniques. The forecast projects total annual demand, average day, maximum month and maximum day demands and forms the basis for other ongoing facility and operations planning efforts.
- Prepared a long-range water supply needs forecast for the North Wales Water Authority. Analyzed water use patterns within the Authority's retail service and identified the water supply requirement for the Authority's share in a regional water supply system. Produced customer forecasts for the service area and individual water demand forecasts for large industrial customers and existing and potential wholesale water customers. Applied statistical and numeric forecasting techniques to assess trends in unit water use for each customer class. The forecast projects total annual demand, average day, maximum month and maximum day demands and forms the basis for other ongoing facility and operations planning efforts.
- Developed a Water Allocation Permit renewal and extension application for the Passaic Valley Water Commission. Secured a new 25-year permit for the diversion of surface water from the Pompton and Passaic Rivers. The new water diversion permit for the Commission supports more flexible operations and more efficient source utilization. The Commission serves a retail service population of 325,000 and effectively serves an additional 260,000 people through sale-for-resale connections.

## **ACCOMPLISHMENTS (CONTINUED)**

- Prepared a cost of service allocation study for Passaic Valley Water Commission, a regional water system that serves a large urban retail service population and a significant outlying area through direct retail and wholesale water sales. Allocated costs based on standard methodologies to Owner Cities, External Cities Retail and Wholesale classes of service. The Commission has annual revenues in excess of \$71 million.
- Prepared a cost of service allocation study for three Pennsylvania Municipal Utilities Authorities considering a joint water supply expansion project. Evaluated and allocated anticipated construction and operating costs for the plant expansion and assigned costs of existing facilities using a commodity-demand allocation method. Developed a recommended tariff design to allow for the fair recovery of prospective costs associated with the expanded facilities.
- Developed a five-year comprehensive business plan for Passaic Valley Water Commission. This plan moved the Commission from an annual operating budget to a five-year budget that links operating costs, capital construction and debt service requirements to customer growth and revenue requirements and rates. The plan was instrumental in obtaining an improved bond rating and positioning the Commission to undertake a major capital improvement program.
- Developed a five-year comprehensive business plan for the North Wales Water Authority. This plan established a rolling five-year operating and capital budget that links operating costs, capital construction and debt service requirements to customer growth and revenue requirements and rates. The plan was instrumental in maintaining current rates while simultaneously maintaining the Authority's AA bond rating.
- Served as an expert witness in an arbitration involving a dispute between a New Jersey municipal water department and A.C. Schultes, Inc., a well contractor. Assisted A.C. Schultes in supporting its claim for a contract modification and the recovery of unanticipated expenses. The arbitrator awarded the contractor 100% of its cost claim.
- Served as an expert witness in a matter involving the alleged contamination of a New Jersey municipal water system with heavy metals and organic chemicals. Reviewed over 38,000 discrete water quality sample results, analyzed the operational records of the system and developed a computer model (EPANET2) depicting water flow and water quality changes over a period spanning two decades. Assisted the client in successfully defeating a threatened class action lawsuit at the certification level.
- Served as a mediator involving a dispute between the Long Beach Township Water Department and Don Siegel Construction Co., Inc., a pipeline installation contractor. Assisted the parties in resolving various construction cost claims and in interpreting the contract construction documents. Litigation over the disputes was avoided.
- Reviewed engineering plans and operational practices in numerous water and wastewater rate adjustment proceedings and quality of service proceedings for the New Jersey Division of Rate Counsel. Assessed utility engineering design and construction plans, developed alternatives to utility proposed projects, and evaluated the utility companies' ability to render safe, adequate and proper water or wastewater

## **ACCOMPLISHMENTS (CONTINUED)**

service. Provides expert testimony in the following utility rate, franchise expansion and service quality proceedings:

- Acacia Lumberton Manor Fire Service Complaint  
BPU Docket No. WC01080495
- Applied Waste Water Management Rates  
BPU Docket No. WR03030222
- Applied Waste Water Management Base Rates  
BPU Docket No. WR08080550
- Applied Waste Water Management Franchise  
BPU Docket No. WE03070530
- Applied Waste Water Management Andover Franchise  
BPU Docket No. WE04111466
- Applied Waste Water Management Hillsborough Franchise  
BPU Docket No. WE04101349
- Applied Waste Water Management Oakland Franchise  
BPU Docket No. WE04111467
- Applied Waste Water Management Union Twp Franchise  
BPU Docket No. WE050414
- Applied Waste Water Management Tewksbury Franchise  
BPU Docket No. WR08100908
- Aqua NJ Freehold Franchise Extension Review  
BPU Docket WE09120965
- Aqua NJ Pine Hill Franchise  
BPU Docket No. WE05070581
- Aqua NJ Upper Freehold Franchise  
BPU Docket No. WE05100822
- Aqua NJ Readington Wastewater Franchise  
BPU Docket No. WE07030224
- Aqua New Jersey Base Rate Case  
BPU Docket No. WR07120955
- Aqua New Jersey Acquisition of Bloomsbury Water  
BPU Docket WE09050360
- Aqua New Jersey Acquisition of Harkers Hollow Water  
BPU Docket WM09020119
- Aqua New Jersey Base Rate Adjustment  
BPU Docket No. WR09121005
- Aqua New Jersey Base Rate Adjustment  
BPU Docket No. WR11120859
- Aqua New Jersey DSIC Foundational Filing  
BPU Docket No. WR12070685
- Atlantic City Sewerage Company Base Rate Adjustment  
BPU Docket No. WR09110940
- Atlantic City Sewerage Company Base Rate Adjustment  
BPU Docket WR11040247
- Bayonne MUA – United Water NJ/ Kohlberg, Kravis,  
Roberts Joint Venture Operations & Financing Agreement  
BPU Docket No. WM12080777

## ACCOMPLISHMENTS (CONTINUED)

- Bayview Water Company Rates  
BPU Docket No. WR01120818
- Camden and United Water Environmental Services,  
Inc. Management Services Agreement Modifications  
BPU Docket No. WM12050457
- Borough of Haledon Rates  
BPU Docket No. WR01080532
- City of Orange Privatization Review  
BPU Docket No. WO03080614
- Crestwood Village Loan Approval  
BPU Docket No. WF04091042
- Crestwood Village Water Co Base Rates  
BPU Docket No. WR07090706
- Elizabethtown Water Co. v. Clinton Board of Adjustment  
BPU Docket No. WE02050289
- Elizabethtown Water Company Rates  
BPU Docket No. WR03070510
- Elizabethtown Water Company Franklin Franchise  
BPU Docket No. WE05020125
- Elizabethtown Water Company Purchased Water Adjustment Clause  
BPU Docket No. WR04070683
- Environmental Disposal Corporation Main Extension Agreement  
BPU Docket No. WO04091030
- Environmental Disposal Corporation Rates  
BPU Docket No. WR04080760
- Environmental Disposal Corporation Rates  
BPU Docket No. WR07090715
- Fayson Lake Water Company Rates  
BPU Docket No. WR03040278
- Fayson Lake Water Company Base Rates  
BPU Docket No. WR07010027
- Gordon's Corner Water Company Rates  
BPU Docket No. WR03090714
- Gordons Corner Water Co Base Rate Adjustment  
BPU Docket No. WR10060430
- Gordons Corner Water Co Base Rate Adjustment  
BPU Docket No. WR12090807
- Jensens Deep Run Franchise Transfer  
BPU Docket No. WE10070453
- Lake Valley Water Company Rates  
BPU Docket No. WR04070722
- Middlesex Water Company Rates  
BPU Docket No. WR03110900
- Middlesex Water Company Rates  
BPU Docket No. WR05050451
- Middlesex Water Company Base Rates  
BPU Docket No. WR07040275

## ACCOMPLISHMENTS (CONTINUED)

- Middlesex Water Co Transmission Main Prudency Review  
BPU Docket No. WO08020098
- Middlesex Water Company Base Rates  
BPU Docket No. WR09080666
- Middlesex Water Company DSIC Foundational Filing  
BPU Docket No. WR12111021
- Middlesex Water Company Base Rates  
BPU Docket No. WR12010027
- Montague Water Company Rates  
BPU Docket No. WR03121034
- Montague Sewer Company Rates  
BPU Docket No. WR03121035
- Montague Sewer Company Rates  
BPU Docket No. WR05121056
- Montague Water Company Acquisition  
BPU Docket No. WM10060432
- Montague Water & Sewer Company Rates  
BPU Docket No. WR12110983
- Mount Holly Water Company Rates  
BPU Docket No. WR03070509
- Mount Olive Villages Water & Sewer Franchise  
BPU Docket No. WE03120970
- New Jersey American Water Company Rates  
BPU Docket No. WR03070511
- New Jersey American Water Company Rates  
BPU Docket No. WR06030257
- New Jersey American Water Acquisition of Mt.  
Ephraim and Approval of Municipal Consent  
BPU Docket No. WE06060431
- New Jersey American Water Purchased Water Adjustment Clause  
BPU Docket No. WR05110976
- New Jersey American Water Company -- Mantua Franchise  
BPU Docket No. WE07060372
- New Jersey American Water Co -- Rocky Hill Franchise  
BPU Docket No. WE07020103
- New Jersey American Water Company Rates  
BPU Docket No. WR08010020
- New Jersey American Hopewell Township Franchise  
BPU Docket No. WE07120981
- New Jersey American Water Co/City of Trenton  
Joint Petition for Approval of the Sale of Water System  
BPU Docket No. WE08010063
- New Jersey American Water Company Petition for Approval of a  
Distribution System Improvement Charge (DSIC)  
BPU Docket No. WO08050358
- New Jersey American Water Co Management Audit  
BPU Docket No. WA09070510

## ACCOMPLISHMENTS (CONTINUED)

- New Jersey American Water Base Rate Adjustment  
BPU Docket No. WR10040260
- New Jersey American Water Company Franklin Franchise Review  
BPU Docket No. WE11070403
- New Jersey American Water Company Base Rate Adjustment  
BPU Docket No. WR11070460
- New Jersey Natural Gas Rates  
BPU Docket No. GR07110889
- Oakwood Village Sewer Change in Control  
BPU Docket No. WM07070535
- Parkway Water Company Rates  
BPU Docket No. WR05070634
- Pinelands Water Company Rates  
BPU Docket No. WR03121016
- Pinelands Wastewater Company Rates  
BPU Docket No. WR03121017
- Pinelands Water Company Rates  
BPU Docket No. WR08040282
- Pinelands Wastewater Company Rates  
BPU Docket No. WR08040283
- Pinelands Water Company Rates  
BPU Docket No. WR120807342
- Pinelands Wastewater Company Rates  
BPU Docket No. WR12080735
- Rock GW, LLC Determination of Applicability of  
Board Regulation  
BPU Docket No. WO08030188
- Rock GW, LLC Determination of Applicability of  
Board Regulation  
BPU Docket No. WO10100739
- Roxbury Water Company Rates  
BPU Docket No. WR09010090
- Seabrook Water Company Franchise  
BPU Docket No. WC02060340
- Shorelands Water Company Rates  
BPU Docket No. WR04040295
- Shorelands Water Company Base Rates  
BPU Docket No. WR10060394
- Shore Water Company Rates  
BPU Docket No. WR09070575
- South Jersey Water Supply Change in Control  
BPU Docket No. WM07020076
- United Water Acquisitions Evaluation  
BPU Docket No. WM02060354
- United Water Arlington Hills Franchise  
BPU Docket No. WE07020084
- United Water Arlington Hills Sewerage Base Rates  
BPU Docket No. WR08100929

## ACCOMPLISHMENTS (CONTINUED)

- United Water New Jersey Base Rates  
BPU Docket No. WR07020135
  - United Water New Jersey Base Rates  
BPU Docket No. WR08090710
  - United Water New Jersey Base Rates  
BPU Docket No. WR11070428
  - United Water New Jersey DSIC Foundational Filing  
BPU Docket No. WR12080724
  - United Water New Jersey Management Audit  
BPU Docket: WA05060550
  - United Water New Jersey Affiliate Transaction  
Review – JPI Painting  
BPU Docket No. WO10060410
  - United Water New Jersey Affiliate Transaction  
Review – Utility Service Contract  
BPU Docket No. WO10060409
  - United Water New Jersey Mt Arlington Franchise  
Extension Review  
BPU Docket No. WE09121006
  - United Water New Jersey Vernon Township Franchise  
Extension Review  
BPU Docket WE10110870
  - United Water New Jersey Vernon Township Franchise  
Extension Review  
BPU Docket WE11030155
  - United Water Great Gorge/Vernon Sewer Base Rates  
BPU Docket No. WR10100785
  - United Water Toms River Base Rates  
BPU Docket No. WR080830139
  - United Water Toms River Base Rates  
BPU Docket No. WR12090830
  - United Water West Milford Sewerage Base Rates  
BPU Docket No. WR08100928
- Assisted the New Jersey Division of Rate Counsel in assessing drought conditions effecting water utilities in New Jersey during the 2002 drought. Analyzed proposals for water supply interconnections to mitigate drought impacts, developed position statements regarding pricing alternatives, and provided a critique of State water supply management initiatives prior to and during drought conditions.
  - Assisted the New Jersey Division of Rate Counsel in assessing the need for a Distribution System Improvement Charge (DSIC) to allow regulated water utilities to accelerate the recovery of capital investments in water distribution assets (BPU Docket WO10090655). Provided financial analyses of current and prospective distribution renovation programs. Reviewed and commented on draft language for a generic rule making.
  - Assisted the Delaware Public Advocate in assessing drought conditions effecting water utilities in northern New Castle County during the 2002 drought (PSC Docket No. 323-02). Reviewed water utility operations prior to and during the drought

## ACCOMPLISHMENTS (CONTINUED)

emergency, assessed the effectiveness of use curtailments, developed recommendations to assure proper, cost-effective resources management for future drought conditions.

- Assisted the Delaware Public Service Commission in a determination of rate base for Artesian Water Company in PSC Docket 08-96. Evaluated selected plant facilities and proposed projects to determine the need to impute revenues for under-utilized facilities in establishing new base rates.
- Assisted the Delaware Public Service Commission in an evaluation of the Initial Tariff filing submitted by Tidewater Environmental Services, Inc. (PSC Docket No. 11-274WW) for wastewater service in a development known as "The Ridings." Evaluated projected operating expenses and rate base claims and developed recommendations that avoided a potential 17.5% rate increase.
- Prepared an assessment of the water supply capacity certification and water conservation plan submitted by United Water Delaware in PSC Docket 09-282 on behalf of the Delaware Public Service Commission. Evaluated the capacity of the sources of supply available to the Company with respect to projected demands and the requirements of the Delaware Water Supply Self-Sufficiency Act of 2003. Assessed the effectiveness of water conservation activities and developed recommendations to improve the efficiency and effectiveness of Company conservation programs.
- Provided expert testimony on behalf of the Delaware Public Advocate in the matter of Inland Bays Preservation Company's request for an increase in wastewater rates before the Delaware Public Service Commission (PSC Docket No. 09-327-WW). Evaluated plant facilities, proposed projects and the allocation of developer contributions in aid of construction to determine rate base. Assessed the level of operating expenses claimed in the filing and recommended adjustments to substantially lower the requested rate increase.
- Provided expert testimony on behalf of the Delaware Public Advocate in the matter of Tidewater Environmental Services, Inc.'s request for a base rate adjustment for seven of its regulated wastewater utility systems (PSC Docket No. 11-329WW). Established independent revenue requirements for each system to assure that costs and rates were properly matched for each independent group of customers served by the Company. Recommended an overall rate adjustment that was equivalent to 60% of the initial rate request and was within 12% of the final Ordered rates in this matter.
- Provided expert testimony on behalf of the Township of Newtown before the Pennsylvania Public Utility Commission (PUC Dkt. No. P-2012-2327738) in regard to a dispute between the Township and Newtown Artesian Water Company regarding the siting of a proposed new well. Evaluated current and future water supply needs, water quality and treatment needs and the revenue requirement of the proposed project relative to other alternatives.

## ACCOMPLISHMENTS (CONTINUED)

- Managed 175 municipal and commercial water and wastewater contracts located in seven states for American Water Services/AmericanAnglian Environmental Technologies. Through these contracts, cost effective water and wastewater service was provided to over one million people. Contracts included the 160 MGD City of Buffalo, NY water system and the 30 MGD Scranton Sewer Authority wastewater operations. Directed an operations staff of 700 employees. Eliminated financial losses while improving safety and quality.
- Directed a marketing and business development staff for AmericanAnglian Environmental Technologies that secured the largest operations and maintenance contract awarded in the US in 1999 and the second best overall performance in the US market. Increased revenues by 28%. Evaluated potential contract operations and design/build projects to identify operating and capital savings on hundreds of potential contracts throughout the United States. Evaluations included Atlanta, Georgia, Scranton, Pennsylvania and Springfield, Massachusetts.
- Managed the operations of 16 water systems for New Jersey-American Water Company, a regulated investor-owned utility serving one million people throughout NJ. Coordinated the activities of a decentralized operations staff of 440 to provide reliable water service, ensure environmental compliance, control costs, manage and maintain system assets, reduce liability, provide site security and maintain a safe work place, and meet financial objectives. Responsible for the maintenance and operation of all source of supply, treatment, filtration and storage facilities, producing and distributing between 100 MGD and 220 MGD, as well as over 4,000 miles of water transmission and distribution facilities.
- Directed a team of engineering, legal, public relations and financial professionals that planned, designed, permitted and constructed a \$192,000,000 water treatment plant and pipeline system for New Jersey-American Water Company. The intake, constructed in environmentally sensitive areas and the state of the art water filtration plant can be expanded to produce 100 MGD. The project is the principal source of surface water for nearly one million people in southern New Jersey and it was built to allow new regulatory controls on ground water use to go into effect. The project was completed within budget and on schedule.
- Developed the financial model and contract language that allowed water lines to be extended to over 3,000 homes with contaminated private wells in Atlantic County, New Jersey. This program provided the financial assurances needed to construct several miles of water mains, eliminate federal tax liability and reduce costs by 34%.
- Initiated and directed the first study of desalination for public water supply purposes in NJ for the City of Cape May. This project evaluated two desalination technologies and demonstrated that reverse osmosis could be used effectively to treat brackish water at a competitive cost. A full-scale plant has since been placed in service.
- Developed long-range regional water supply plan for Monmouth County, New Jersey, a county that was adding as many as 1,000 water utility customers per year and seriously stressing the water supply. The plan evaluated alternative sources of water, conservation and regional reservoir development. The recommendations avoided \$30,000,000 in capital construction while ensuring a safe supply of water for a 15-year planning period. Negotiated supply sharing operating agreements with the New Jersey Water Supply Authority to implement the plan.

## ACCOMPLISHMENTS (CONTINUED)

- Directed a staff of engineers and consultants in preparing comprehensive plans for 60 water systems located throughout the United States. Communities served by these systems include: Pittsburgh, Pennsylvania and its surrounding suburbs; Charleston, West Virginia; Richmond, Indiana; E. Saint Louis, Illinois and Monterey, California. Evaluated alternatives and identified the least costly means of providing safe water service for each system. Assessed operations strategies to identify external threats to the reliability and efficiency of these systems. Identified specific capital facility needs and operations strategies for five, ten and fifteen year planning horizons, defined the long term role of each system in prompting regional water supply development, and assessed the impact of future State and Federal water quality regulations on system operations and needs.
- Developed a formula for allocating ground water to 30 water suppliers in southern New Jersey for the New Jersey Department of Environmental Protection and negotiated an implementation agreement with effected suppliers. The New Jersey Legislature adopted the formula in the Water Supply Management Act Amendments of 1992. The allocation formula protects a regional aquifer from over-pumping.
- Developed a plan to convey storm water through a sixty-foot high railroad embankment in Prince Georges County, Maryland. Evaluated alternative methods and selected one that allowed an existing culvert to be modified to carry higher flow rates. Saved over \$500,000 in construction costs. The Washington Suburban Sanitary Commission and Prince Georges County adopted the design as a standard in their storm water design manual.
- Negotiated Lakewood, New Jersey's first three-year water and wastewater labor agreement in the face of an impending strike, departing from prior history of year-to-year contract agreements.
- Provided expert testimony in judicial proceedings involving utility rate adjustments before the New Jersey Board of Public Utilities, the Connecticut Department of Public Utility Control and the New York Public Service Commission. Testified on environmental and operations topics including: rate setting strategies, source of supply improvements, water resources management, treatment to mitigate contamination, staffing levels and operating practices. Evaluated alternative operating practices and testified as to the least costly means of operating and maintaining water and wastewater facilities in these jurisdictions.
- Served as a gubernatorial appointee to the New Jersey Water Supply Advisory Council under Governors Florio and Whitman. Advised the NJ Department of Environmental Protection on a variety of water resources management issues.
- Coordinated the response to an outbreak of giardiasis for the US Environmental Protection Agency. The outbreak affected 20% of the people served by a municipal water system in north-central Pennsylvania. Specified immediate control measures, short-term treatment techniques and long-term treatment improvements to resolve the immediate problem and prevent a recurrence.

## REPRESENTATIVE CLIENTS

- A.C. Schultes, Inc.
- Aquarion Water Company of Connecticut
- Aquarion Water Company of Massachusetts
- Atlantic City Municipal Utilities Authority
- Bethlehem Water Authority
- BOC Gases
- Bucks County Water & Sewer Authority
- Camco Management
- Cedar Grove Township
- Consumers New Jersey Water Company
- Delaware Public Advocate
- Delaware Public Service Commission
- D. R. Horton – New Jersey
- Elmira Water Board
- Greater Ouachita Water Company
- Harris Defense Group
- Jersey City Municipal Utilities Authority
- Lower Makefield Township
- New Jersey-American Water Company
- New Jersey Division of Rate Counsel
- New Jersey Water Supply Authority
- New York City Department of Environmental Protection
- North Penn Water Authority
- North Wales Water Authority
- Passaic Valley Water Commission
- Perkasio Borough
- Perkasio Borough Authority
- Pricewaterhouse Coopers, LLP
- Sussex Shores Water Company
- Township of Sparta (NJ)
- U.S. Water, LLC
- Upper Dublin Township

## PROFESSIONAL QUALIFICATIONS

Registered Professional Engineer in Delaware (2004), Maryland (1982), New Jersey (1984), New Mexico (1987), New York (1984) and Pennsylvania (1983).

Licensed to complete RAM-W vulnerability assessments (2002).

## PROFESSIONAL ASSOCIATIONS

American Society of Civil Engineers, American Water Works Association (Trustee of New Jersey Section), American Water Resource Management Association, International Water Association, National Ground Water Association, National Fire Protection Association, Water Environment Federation, Tau Beta Pi.

## PROFESSIONAL HISTORY

<b>HOWARD J. WOODS, JR. &amp; ASSOCIATES, LLC</b>	<b>2000 - Present</b>
General Manager	
<b>AMERICAN WATER WORKS COMPANY</b>	<b>1983 - 2000</b>
American Water Services, Inc.	
Senior Vice President - Operations	1999 - 2000
American Anglian Environmental Tech., L.P.	
Senior Vice President - Business Development	1998 - 1999
American Water Works Service Co.	
Vice President - Special Projects	1997 - 1998
New Jersey-American Water Co., Inc.	
Vice President - Operations	1989 - 1997
American Water Works Service Co.	
Engineering Manager	1988 - 1989
System Director of Planning	1986 - 1988
Division Manager of Operations	1984 - 1986
Division Director of Engineering	1983 - 1984
<b>JOHNSON, MIRMIRAN &amp; THOMPSON</b>	<b>1981 - 1983</b>
Project Engineer	
<b>U.S. ENVIRONMENTAL PROTECTION AGENCY</b>	<b>1977 - 1981</b>
Environmental Engineer	

## **APPENDIX B - Exhibits**

### **LIST OF SCHEDULES**

- HJW-1: Revenues
- HJW-2: Other Wastewater Revenues
- HJW-3: Normalized O&M Expenses
- HJW-4: Purchased Power
- HJW-5: Rate Base
- HJW-6: Capital Structure and Cost of Capital
- HJW-7: Operating Income and Rate of Return
- HJW-8: Income Taxes
- HJW-9: Taxes Other Than Income
- HJW-10: Present and Proposed Rates

Schedule HJW-1: REVENUES

	2010	2011	Company Test Year 9/30/12	2012	Actual 4/29/13	Company Test Period 6/30/13	DPA Adjustments	DPA Recommendation
# of Customers 1 EDU			978	1022	1068	1088		1088
# of Customers 3 EDUs			1	1	1	1		1
# of Customers 5 EDUs			3	3	3	3		3
# of Customers 6 EDUs			1	1	0	1		1
# of Customers 7 EDUs			0	0	1	0		0
# of Customers 10 EDUs			1	1	1	1		1
# of Customers 12 EDUs			1	1	1	1		1
<b>Total Customers</b>	<b>885</b>	<b>981</b>	<b>985</b>	<b>1029</b>	<b>1075</b>	<b>1095</b>		<b>1095</b>
Annualized Number of EDUs Billed			12,288	12,816	13,380	13,608		13,608
Supplemental Adjustment to EDU Count						408		408
<b>Total Adjusted EDUs</b>			<u>14,016</u>	<u>14,016</u>	<u>14,016</u>	<u>14,016</u>		<u>14,016</u>
<b>FLAT RATE REVENUE-GENERAL</b>	<b>\$714,252</b>	<b>\$832,648</b>	<b>\$888,822</b>	<b>\$913,994</b>	<b>\$1,003,500</b>	<b>\$1,017,337</b>	<b>\$33,863</b>	<b>\$1,051,200</b>
<b>OTHER WASTEWATER REVENUES</b>	<b>\$819,588</b>	<b>\$823,489</b>	<b>\$794,149</b>	<b>\$753,566</b>	<b>\$795,663</b>	<b>\$745,087</b>	<b>\$53,052</b>	<b>\$798,139</b>
<b>TOTAL OPERATING REVENUE</b>	<b>\$1,533,840</b>	<b>\$1,656,137</b>	<b>\$1,682,971</b>	<b>\$1,667,560</b>	<b>\$1,799,163</b>	<b>\$1,762,424</b>	<b>\$86,915</b>	<b>\$1,849,339</b>

Schedule HJW-1 (CONTINUED)

Notes:

- (1) Test Year EDU Counts from workpaper for Exhibit 1, Schedule 6.
- (2) Test Period EDU counts derived by adding 110 single EDU customers to the Test Year values and carrying forward the number of multiple EDU customers from the Test Year. See also the response to DPA-25 and Company workpapers for Exhibit 1, Schedule 6.
- (3) Actual EDU Counts at April 29, 2013 from DPA-23.
- (4) Total customer counts for 2010 and 2011 from PSC-1.
- (5) Total customer count for 2012 from PSC-10.
- (6) Flat Rate Revenues from DPA-1, p. 15 for 2010, 2011 and 2012.
- (7) Flat Rate Revenues for twelve months ending 4/29/2013 annualized at \$75 per month for EDU count from DPA-23.
- (8) Flat Rate Revenues for Test Period from Exhibit 1, Schedule 3 p.3, Revised May 31, 2013.
- (9) Other Wastewater Revenues for 2010, 2011 and 2012 from DPA-1, p. 15.
- (10) Actual Other Revenues for 4/29/2013 represents 12 months ending March 2013 from Exhibit 1, Schedule 3, p. 4 and DPA-30.
- (11) Other Wastewater Revenues for Test Year and Test Period from Exhibit 1, Schedule 3, p.3, Revised May 31, 2013.
- (12) DPA Recommended Other Wastewater Revenues from Schedule HJW-2.

Schedule HJW-2: OTHER WASTEWATER REVENUES

Ln	No.	Description	Revenues for 12-Months Ending						
			Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13
1		Flat Rate Revenue	\$888,822	\$898,395	\$905,738	\$913,995	\$922,273	\$915,100	\$928,343
2		Other Revenues	\$8,220	\$8,220	\$8,220	\$5,870	\$5,120	\$5,495	\$5,495
3		Op Sub Stonewater Creek	\$142,534	\$132,036	\$137,992	\$143,850	\$129,465	\$123,852	\$135,924
4		Op Sub Beaver Creek	\$163,135	\$158,190	\$158,190	\$172,480	\$184,661	\$185,595	\$191,452
5		Op Sub Heron Bay	\$141,826	\$131,642	\$142,935	\$135,787	\$147,225	\$158,663	\$170,101
6		Op Sub Oakwood Village	\$108,076	\$108,076	\$108,076	\$26,360	\$-	\$-	\$-
7		Op Sub Independence	\$84,133	\$85,761	\$89,080	\$79,889	\$79,481	\$83,216	\$91,609
8		Op Sub Windstone	\$76,122	\$80,490	\$77,064	\$113,512	\$122,058	\$118,223	\$123,153
9		Op Sub Southfield	\$2,823	\$1,948	\$1,948	\$4,870	\$4,870	\$4,870	\$4,870
10		Op Sub Shoreview Woods	\$49,575	\$52,880	\$52,880	\$52,880	\$56,185	\$52,880	\$54,880
11		Inspection Fees	\$15,100	\$15,100	\$16,500	\$15,900	\$15,900	\$16,400	\$16,800
12		Late Payment	\$1,793	\$1,406	\$1,223	\$1,356	\$1,537	\$1,419	\$1,360
13		Purchase Discounts	\$812	\$812	\$812	\$812	\$824	\$826	\$19
		<b>TOTAL REVENUES</b>	<b>\$1,682,971</b>	<b>\$1,674,956</b>	<b>\$1,700,658</b>	<b>\$1,667,561</b>	<b>\$1,669,599</b>	<b>\$1,666,539</b>	<b>\$1,724,006</b>
		Operating Subsidies	\$794,149	\$776,561	\$794,920	\$753,566	\$747,326	\$751,439	\$795,663
		Other Revenues	\$8,220	\$8,220	\$8,220	\$5,870	\$5,120	\$5,495	\$5,495
		Inspection Fees	\$15,100	\$15,100	\$16,500	\$15,900	\$15,900	\$16,400	\$16,800
							Normalized Operating Subsidies		\$773,375
							Normalized Other Revenues		\$6,663
							Normalized Inspection Fees		\$15,957

Schedule HJW-2: OTHER WASTEWATER REVENUES (CONTINUED)

Late Payment	\$1,793	\$1,406	\$1,223	\$1,356	\$1,537	\$1,419	\$1,360
					Normalized Late Payment		\$1,442
Purchase Discounts	\$812	\$812	\$812	\$812	\$824	\$826	\$19
					Normalized Purchase Discounts		\$702
					TOTAL NORMALIZED OTHER WASTEWATER REVENUES		\$798,139

Notes:

(1) Twelve month data calculated from Exhibit 1, Schedule 3, p.4 and the response to DPA-30.

Schedule HJW-3: NORMALIZED O&M EXPENSES

Item	2009	2010	2011	2012	Test Year 9/30/12	Actual 4/30/13	Test Period 6/30/13	DPA Recommendation
Payroll	\$319,252	\$515,650	\$577,845	\$512,776	\$518,267	\$532,555	\$535,004	\$518,267
Benefits	\$115,352	\$188,893	\$201,659	\$202,134	\$200,619	\$207,499	\$216,669	\$207,499
Sludge Removal	\$44,213	\$64,796	\$72,726	\$60,456	\$64,622	\$57,623	\$71,838	\$64,622
Purchased Power	\$63,273	\$66,371	\$74,543	\$61,716	\$61,454	\$62,898	\$84,955	\$72,960
Chemicals	\$3,213	\$3,870	\$8,357	\$6,780	\$8,765	\$8,075	\$9,744	\$8,075
Materials & Supplies	\$22,155	\$17,122	\$27,808	\$19,974	\$17,068	\$30,117	\$16,910	\$22,155
Land Rent	\$41,337	\$39,996	\$40,063	\$40,866	\$40,665	\$41,137	\$-	\$-
Contractual Services	\$87,855	\$126,527	\$204,698	\$139,653	\$144,093	\$126,519	\$124,455	\$126,527
Customer Accounts	\$3,000	\$-	\$1,791	\$26,100	\$25,589	\$2,611	\$26,101	\$25,589
Transportation	\$49,558	\$53,065	\$67,404	\$86,982	\$80,144	\$85,925	\$79,939	\$80,144
Other	\$59,046	\$43,670	\$42,279	\$33,673	\$36,154	\$64,801	\$48,184	\$43,670
Administrative & General	\$100,277	\$146,020	\$176,475	\$150,737	\$171,456	\$144,220	\$213,204	\$162,495
Total O & M	\$908,531	\$1,265,980	\$1,495,648	\$1,341,847	\$1,368,896	\$1,363,980	\$1,427,003	\$1,332,003

Company Test Period  
DPA Adjustment

\$1,427,002  
\$(94,999)

Notes:

- (1) Expenses in years 2009 through 2012 from DPA-6.
- (2) Test Year Expenses from Exhibit 1, Schedule 3B, p.1
- (3) DPA Recommended Purchased Power Expense from Schedule HJW-4.
- (4) Rent expense removed. See response to DPA-44 and Supplemental Testimony of D. Valcarenghi at p. 3, lines 9-12.
- (5) Company Test Period Expenses from Exhibit 1, Schedule 3, p. 3, Revised May 31, 2013.
- (6) A&G Expense taken at the median value for 2009-2012 plus an addition of \$16,475 for rate case expense.

Intervener Consultants	\$15,000
Legal Costs	\$15,000
Administrative Costs	\$2,850
Filing Fees	\$100
Total	\$32,950
Normalization Period	2
Adjustment to Median A&G	\$16,475

Schedule HJW-4: PURCHASED POWER

Year	Customers	Rainfall	Purchased Power
2009	624	57.78	\$63,273
2010	790	45.39	\$66,371
2011	908	44.66	\$74,543
2012	1029	33.36	\$61,716
2101.5496	404.7930903	-38059.45345	76150696.55
0	0	0	0
1	0	0	0
0	0	0	0
98004322.75	0	0	0
<b>TEST PERIOD</b>	<b>2013</b>	<b>1095</b>	<b>\$72,960</b>

Notes:

- (1) Precipitation data from National Oceanic and Atmospheric Administration National Climatic Data Center at <http://www.ncdc.noaa.gov/temp-and-precip/time-series/index.php?parameter=pcp&month=12&year=2012&filter=ytd&state=7&div=2>
- (2) Customer count from PSC-10
- (3) Test Period Customers from HJW-1.

Schedule HJW-5: Rate Base

Item	Company Test Period	Adjustments	DPA Recommendation
Net Plant in Service	\$19,596,475	\$-	\$19,596,475
Accumulated Depreciation	\$(1,942,854)	\$-	\$(1,942,854)
Advances for Construction Net	\$(563,910)	\$-	\$(563,910)
Contributions in Aid of Construction Net	\$(11,685,736)	\$-	\$(11,685,736)
Deferred Income Taxes	\$(1,190,879)	\$-	\$(1,190,879)
Materials & Supplies	\$-	\$-	\$-
Cash Working Capital	\$183,122	\$(183,122)	\$-
<b>Rate Base</b>	<b>\$4,396,218</b>	<b>\$(183,122)</b>	<b>\$4,213,097</b>

**Notes:**

- (1) Company Test Period values from Exhibit 1, Schedule 2, Revised May 31, 2013.
- (2) DPA Net Plant from Schedule HJW-5.
- (3) DPA Accumulated Depreciation from Schedule HJW-7.
- (4) Cash working capital allowance eliminated due to advance billing.

## Schedule HJW-6: CAPITAL STRUCTURE AND COST OF CAPITAL

Book Capital Structure			
Item	Amount	Ratio	Weighted Cost
Debt	\$13,087,091	75.50%	1.40%
Equity	\$4,246,155	24.50%	2.45%
	\$17,333,246	100.00%	3.85%

Remove Non-Utility Debt			
Item	Amount	Ratio	Weighted Cost
Debt	\$1,974,575	31.74%	0.59%
Equity	\$4,246,155	68.26%	6.83%
	\$6,220,730	100.00%	7.41%

Company Hypothetical Capital Structure			
Item	Amount	Ratio	Weighted Cost
Debt	\$4,696,827	59.43%	1.10%
Equity	\$3,205,847	40.57%	4.06%
	\$7,902,674	100.00%	5.16%

DPA Recommended Capital Structure and Cost Rates			
Item	Amount	Ratio	Weighted Cost
Debt	\$4,696,827	59.43%	1.85%
Equity	\$3,205,847	40.57%	9.75%
	\$7,902,674	100.00%	5.05%

## Schedule HJW-7: UTILITY OPERATING INCOME (UOI) AND RATE OF RETURN

Item	Company			
	Test Period	DPA Adjustments	DPA At Present Rates	DPA At Proposed Rates
Flat Rate Revenues	\$1,017,337	\$33,863	\$1,051,200	\$1,061,500
Other Wastewater Revenues	\$745,087	\$53,052	\$798,139	\$798,139
Total Operating Revenues	\$1,762,424	\$86,915	\$1,849,339	\$1,859,639
Operating Expenses				
O&M Expenses	\$1,427,002	\$(94,999)	\$1,332,003	\$1,332,003
Depreciation	\$166,847	\$(0)	\$166,847	\$166,847
Taxes Other Than Income	\$37,974	\$499	\$38,473	\$38,504
Total Operating Expenses	\$1,631,823	\$(94,500)	\$1,537,323	\$1,537,354
UOI Before Income Taxes	\$130,601	\$181,415	\$312,016	\$322,285
Income Taxes Current				
Federal	\$(211,615)	\$56,946	\$(154,669)	(151,481)
State	\$(59,308)	\$15,960	\$(43,348)	(42,455)
Income Taxes Deferred				
Federal	\$237,145	\$0	\$237,145	\$237,145
State	\$66,464	\$(0)	\$66,464	\$66,464
Total Income Taxes	\$32,686	\$72,906	\$105,592	\$109,673
Net UOI	\$97,915	\$108,510	\$206,425	\$212,613
Rate Base	\$4,396,218	\$(183,121)	\$4,213,097	\$4,213,097
Rate of Return	2.23%		4.90%	5.05%

Schedule HJW-8: INCOME TAXES

Line No.	Operating Income Taxes	DPA at Present Rates	DPA at Proposed Rates	Line No.	Deferred Income Taxes
1	Utility Operating Income before Income Taxes	312,016	322,285	1	Excess Tax over Book Depreciat.
2	Rate Base	4,213,097	4,213,097	2	Rate of Tax
3	Interest Expense @ Weighted Debt			3	Deferred State Income Tax
4	Net income subject to state income taxes	46,324	46,324		
5	Rate of state income tax	265,693	275,962	4	Timing Differences for FIT
6	Pro Forma State Income Tax	8.70%	8.70%	5	Tax Rate
7	Less: Deferred State Income Tax	23,115	24,009	6	Deferred Federal Income Tax
8	State Income Tax Currently Payable for Test Period	66,464	66,464		
9	Actual State Income Tax Payable	(43,348)	(42,455)		
10	Pro Forma State Income Tax	0			
11	Pro Forma State Tax	(43,348)	(43,348)		
12	Net Income Subject to State Income	265,693	275,962		
13	Pro Forma State Income Tax	23,115	24,009		
14	Net Income Subject to Federal Income Tax	242,577	251,953		
15	Federal Income Tax Rate	34%	34%		
16	Pro Forma Federal Income Tax	82,476	85,664		
17	Less Deferred Federal Income Tax	237,145	237,145		
18	Total Pro Forma Federal Income Tax	(154,669)	(151,481)		
19	Actual Tax Payable for Test Year	0			
20	Pro Forma Decrease to FIT payable under present rates	(154,669)			
21	Pro Forma FIT Payable		(154,669)		
22	Pro Forma Increase to determine FIT Payable		3,188		

Schedule HJW-9: TAXES OTHER THAN INCOME

	Test		At DPA
	Year	Period	Proposed Rates
Operating Revenues	\$1,682,971	\$1,849,339	\$1,859,639
PSC Assessment	\$5,049	\$5,548	\$5,579
Total Taxes Less PSC Assessment	\$32,925	\$32,925	\$32,925
Total Taxes Other Than Income	\$37,974	\$38,473	\$38,504

Schedule HJW-10: PRESENT AND PROPOSED RATES

Item	Present Rates	DPA Proposed Rates	Increase	Increase
Flat Rate Revenues	\$1,051,200	\$1,061,500	\$10,300	0.98%
Annual EDUs Billed	14,016	14,016		
Unit Rate Per EDU/Month	\$75.00	\$75.73	\$0.73	0.98%

