

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF DELAWARE

IN THE MATTER OF THE APPLICATION OF )  
ARTESIAN WATER COMPANY, INC. )  
FOR AUTHORITY TO INCREASE RATES ) PSC DOCKET NO. 14-132  
AND CHARGES FOR WATER SERVICE )

**PUBLIC VERSION**

DIRECT TESTIMONY

OF

GLENN A. WATKINS

ON BEHALF OF

STATE OF DELAWARE  
DIVISION OF PUBLIC ADVOCATE

SEPTEMBER 24, 2014

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1   **I.    INTRODUCTION AND OVERVIEW**

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

3   A.       My name is Glenn A. Watkins. My business address is 9030 Stony Point  
4       Parkway, Suite 580, Richmond, Virginia 23235.

5   **Q.    WHAT IS YOUR PROFESSIONAL AND EDUCATIONAL BACKGROUND?**

6   A.       I am Executive Vice President and Senior Economist of Technical Associates,  
7       Inc., which is an economic research and consulting firm with offices in Richmond,  
8       Virginia. Except during 1987, when I was employed by Old Dominion Electric  
9       Cooperative as its forecasting and regulatory economist, I have worked in varying  
10       capacities with Technical Associates continuously since 1980.

11       During my career at Technical Associates, I have conducted cost of capital,  
12       revenue requirement, load forecasting, cost of service, and rate design studies involving  
13       numerous electric, gas, water/wastewater, and telephone utilities, and have presented  
14       expert testimony on these and other topics in Alabama, Arizona, Delaware, Georgia,  
15       Illinois, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Jersey,  
16       North Carolina, Ohio, Pennsylvania, Vermont, Virginia, South Carolina, Washington,  
17       and West Virginia.

18       I hold an M.B.A. and B.S. in economics from Virginia Commonwealth University  
19       and am a Certified Rate of Return Analyst. A more complete statement of my  
20       professional and educational background appears in my Schedule GAW-1.

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1 **Q. HAVE YOU PREVIOUSLY PROVIDED EXPERT TESTIMONY BEFORE THIS**  
2 **COMMISSION?**

3 A. Yes. I have presented testimony on numerous occasions on behalf of the  
4 Delaware Public Advocate as well as the Office of the Attorney General, including  
5 Artesian's last general rate case (Docket No. 11-207).

6 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

7 A. I was retained by the State of Delaware Division of Public Advocate ("DPA") to  
8 evaluate the revenue requirement and rate structure aspects of the current rate case filing  
9 of Artesian Water Company, Inc. ("Artesian" or "Company").

10

11 **II. SUMMARY OF RECOMMENDATIONS**

12 **Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS.**

13 A. Based on my analyses of Artesian's revenues, operating expenses, and rate base,  
14 as well as the cost of capital recommendations of DPA witness Dr. J. Randall Woolridge,  
15 I recommend an overall base rate revenue increase of \$263,753, as compared to the  
16 \$9,879,283 million increase Artesian proposes in its June 30, 2014 Supplemental and  
17 Updated Filing.

18 With regard to rate design, I recommend no increase to the fixed monthly  
19 customer charges. Currently, the 5/8" customer charge is \$13.22, as compared to the  
20 Company's proposed monthly customer charge of \$14.51.

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1           With respect to the Company's proposed tariff changes concerning the addition of  
2           a "ready to serve" charge, this new provision should be rejected. Furthermore, the  
3           Company's proposed additions to the seasonal reconnection charge should also be  
4           rejected.

5  
6   **III. REVENUE REQUIREMENT**

7   **Q.   WHAT TEST YEAR AND TEST PERIOD HAS THE COMPANY PROPOSED**  
8   **WITHIN THIS RATE FILING?**

9   A.           Artesian has selected a test year ending December 31, 2013 and proposes a test  
10           period ending September 30, 2014.

11   **Q.   DO YOU AGREE WITH THE COMPANY'S TEST YEAR AND PROPOSED**  
12   **TEST PERIOD IN THIS CASE?**

13   A.           Yes. The Company's requested test period is in accordance with the  
14           Commission's regulations limiting test periods to reflect a time frame no greater than  
15           nine months beyond the test year.

16   **Q.   HOW ARE YOUR REVENUE REQUIREMENT ANALYSES AND SCHEDULES**  
17   **STRUCTURED?**

18   A.           My revenue requirement analyses are provided in my Schedules GAW-2 through  
19           GAW-17. Schedule GAW-2 provides a summary of rate base and operating income  
20           showing the Company's proposed amounts, my adjustments to the Company's  
21           supplemental amounts, the DPA's recommended rate base and operating income

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1 amounts, as well as the revenue increase required to achieve the 7.31% rate of return  
2 (“ROR”) on rate base recommended by DPA witness Woolridge.

3 Schedule GAW-3 provides a summary of each specific adjustment I have made to  
4 the Company’s supplemental filing, while Schedules GAW-4 through GAW-17 provide  
5 the details of each of my recommended adjustments.

6  
7 **A. Rate Base**

8 **1. Gross Plant in Service**

9 **Q. WHAT GENERAL APPROACH DID ARTESIAN UTILIZE TO PROJECT**  
10 **PLANT ADDITIONS FROM THE END OF THE TEST YEAR THROUGH THE**  
11 **END OF THE TEST PERIOD?**

12 **A.** In its initial filing, the Company utilized budgeted capital expenditures.  
13 Subsequent to its initial filing, Artesian updated its projected plant additions to reflect  
14 more current information and projections as of June 30, 2014. Specifically, Artesian’s  
15 update reflected actual expenditures for those previously budgeted projects that have  
16 been completed and placed in service, revised some of its budgeted projects that had not  
17 yet begun as of June 30, 2014, and reflected the actual expenditures to date for the test  
18 period budgeted projects (some complete and some still under construction).

19 **Q. HAVE YOU MADE ANY ADJUSTMENTS TO THE COMPANY’S**  
20 **SUPPLEMENTAL REQUEST FOR PLANT ADDITIONS BEYOND THE**  
21 **ACTUAL TEST YEAR?**

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1     A.           Yes. In response to PSC-RR-5a, the Company provided an itemized listing of  
2           each proposed plant addition beyond the test year which encompassed some 301 cost  
3           estimates. This response also provided the Company's initial budgeted estimate for each  
4           project, an updated (supplemental) cost estimate, the project's start and expected end  
5           date, actual expenditures through June 30, 2014, and those projects actually placed in  
6           service as of June 30, 2014.

7           I have evaluated each of the Company's budgeted projects and made adjustments  
8           to reflect the following three criteria. First, I have eliminated those budgeted projects that  
9           were not yet started as of June 30, 2014. Second, I eliminated those large expenditure  
10          projects in which less than 25% of the total budgeted amount had been spent as of June  
11          30, 2014. Third, I increased those project costs in which the actual expenditures have  
12          exceeded the Company's supplemental estimates; i.e., I have recognized those projects  
13          that are complete or largely complete and have actually cost more than expected or  
14          budgeted. My net adjustment to the Company's plant additions beyond the test year  
15          (gross plant in service) – reduces rate base by \$7,993,109. The details supporting my  
16          plant adjustment are shown in my Schedules GAW-4 through GAW-4.3.

17     **Q.     WHAT IS THE BASIS FOR ELIMINATING THOSE PROJECTS THAT WERE**  
18     **NOT YET STARTED AS OF JUNE 30, 2014, OR WERE SIGNIFICANT IN SIZE**  
19     **AND LESS THAN 25% COMPLETE?**

20     A.           The foundation, or starting point of the Company's projected plant additions  
21           beyond the test year, is its annual capital expenditure budget. Given the length of time

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1 required to complete these projects, it is unlikely that those projects that were not yet  
2 started or are less than 25% complete as of June 30, 2014 will be fully completed and  
3 placed into service within three months, which reflects the end of the test period  
4 (September 30, 2014).

5 **Q. IS IT APPROPRIATE TO REFLECT ANY PROJECTS THAT ARE STILL**  
6 **UNDER CONSTRUCTION AND NOT IN SERVICE AS OF SEPTEMBER 30,**  
7 **2014?**

8 A. No. Such projects still under construction at the end of the test period reflect  
9 Construction Work In Progress ("CWIP"). CWIP does not reflect plant that is used and  
10 useful. Furthermore, this Commission allows, and the Company accrues, Allowances for  
11 Funds Used During Construction ("AFUDC"), which compensates the Company for the  
12 lost opportunity cost (time value of money) of funds utilized during the period between  
13 the start of construction and when a project is ultimately placed into service. These  
14 AFUDC accruals are added to the Company's gross plant in service such that Artesian  
15 earns a full return on the opportunity costs of plant during construction. As such, only  
16 those projects that are complete and placed into service as of September 30, 2014 should  
17 be reflected in the Company's rate base.

18 **2. Other Plant-Related Adjustments to Rate Base**

19 **Q. ARE THERE SUPPLEMENTAL ADJUSTMENTS REQUIRED AS A RESULT**  
20 **OF YOUR ADJUSTMENTS TO THE COMPANY'S PROPOSED INVESTMENT**  
21 **IN PLANT IN SERVICE?**

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1 A. Yes. Depreciation reserve, depreciation expense, Accumulated Deferred Income  
2 Taxes (“ADIT”), and property taxes are all affected as a result of my plant in service  
3 adjustment. Specifically, depreciation reserve and depreciation expense are each reduced  
4 by \$172,230, ADIT is reduced by \$184,315, and property taxes are reduced by \$209,419.  
5 The details supporting my depreciation and property tax adjustments are provided in my  
6 Schedule GAW-4, while my ADIT adjustment is shown in Schedule GAW-5.

7 **3. Cash Working Capital (“CWC”)**

8 **Q. PLEASE EXPLAIN THE BASIC CONCEPT AND PURPOSE OF CWC.**

9 A. CWC reflects the amount of cash required by a firm to fund its day-to-day  
10 operations to pay expenses and other cash payment obligations. While business  
11 enterprises typically collect cash through revenue on a continuous and day-to-day basis, it  
12 must also pay expenses on a continuous and day-to-day basis. When revenue is collected  
13 in advance of service, or faster than expenses are incurred, CWC is essentially funded by  
14 its revenue stream from customers (ratepayers). However, when revenue is collected in  
15 arrears (after service is rendered) and expenses are paid shortly after they are incurred,  
16 cash must be provided by shareholders to fund the day-to-day operations of the firm.

17 With regard to the regulation of public utilities, when revenue is collected faster  
18 than expenses are paid, CWC is negative. Likewise, when cash expenditures are incurred  
19 and paid sooner than revenue is collected for service rendered, CWC is typically positive.  
20 Because CWC is an allowance (either positive or negative) for investor-supplied capital,  
21 it is typically included as part of rate base.

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1 **Q. HOW IS CWC TYPICALLY DETERMINED FOR PUBLIC UTILITIES?**

2 A. There are two generally accepted approaches to determine a public utility's CWC  
3 requirement. The first method is known as the 1/8 Operation and Maintenance ("O&M")  
4 Expense approach in which it is assumed by default that a utility's CWC requirement is  
5 equal to 1/8 of its annual cash O&M expenses. This approach is very simplistic and not  
6 specific to a utility's individual operations or cash needs and is generally only used for  
7 small utilities. The second, and more preferred, approach is known as the Lead/Lag  
8 study approach. This Lead/Lag approach is much more detailed and is specific to a  
9 particular utility's cash requirements. Under this approach, the timing of a utility's  
10 revenue streams and cash expense payout patterns are evaluated separately to determine  
11 the weighted average time period between the collection of revenues and the provision of  
12 service in days, as well as the payment of expenses and incurrence of expenses. To the  
13 extent revenues are received in advance of service, or payments are made before the  
14 incurrence of expenses, "Lead" days are said to exist. Similarly, to the extent that  
15 revenues are collected in arrears of the provision of service or payments are made after  
16 the incurrence of expenses, "Lag" days are said to exist.

17 Detailed analyses are conducted for each type of revenue and cash expense to  
18 develop individual Lead and Lag days. These revenues and expenses are then weighted  
19 and revenues are netted against expenses to develop a "net" Lead or Lag days of cash  
20 required to operate the utility's operations.

21 **Q. WHICH APPROACH HAS ARTESIAN USED IN THIS RATE CASE?**

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1 A. The Company has utilized the Lead/Lag study approach to develop its requested  
2 CWC requirement.

3 **Q. DO YOU HAVE ANY DISAGREEMENTS WITH ARTESIAN'S LEAD/LAG**  
4 **STUDY?**

5 A. Yes. To understand my disagreements with the Company's Lead/Lag study it  
6 must be understood that Artesian collects some of its rate revenue in advance of service  
7 and some of its rate revenue in arrears (after service is rendered). Specifically, as set  
8 forth in the Company's tariff, Artesian bills customers in advance for the fixed monthly  
9 customer and Public Fire Protection charges, while bills are rendered after service is  
10 provided for the usage charge component of the customer's bill. Remembering that the  
11 concept of CWC involves the timing of cash receipts, one must then evaluate the time  
12 period in which cash is actually collected relative to service being provided. For  
13 example, under a monthly billing mechanism such as Artesian uses, if a portion of bills is  
14 paid in advance of service (customer and Public Fire charges) and customers, on average,  
15 pay their bills ten days after the bill is rendered, there is a 5-day Lead associated with the  
16 prepayment of customer charge and Fire Protection revenues (15 days in advance of mid-  
17 point of service less 10 days until cash is received). Similarly, if a portion of bills are  
18 paid after service is rendered (usage charges), there is a 25-day Lag associated with usage  
19 revenues (15-day Lag from mid-point of service plus 10-day payment Lag).

20 In this case, even though Artesian has considered its revenue collections  
21 separately for fixed monthly and volumetric-based usage charges, it has incorrectly

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1           determined the revenue Lead days associated with the prepayment of customer and  
2           Public Fire Protection services.

3   **Q.   PLEASE EXPLAIN HOW ARTESIAN DETERMINED ITS REVENUE LEAD**  
4   **AND LAG DAYS ASSOCIATED WITH REVENUES.**

5   **A.**The Company evaluated the revenue collection pattern for every bill rendered  
6           during the test year. The Company's analyses encompassed 736,386 separate records. In  
7           other words, the Company extracted data from its billing system and analyzed the  
8           revenue collection pattern separately for every bill rendered during the test year. These  
9           individual revenue collection patterns were then weighted based on each bill's revenue  
10          level and summed to develop a weighted average revenue collection pattern.

11                While I have no disagreement with the Company's calculation of the usage  
12                component of each bill's revenue collection pattern, Artesian has erred in its  
13                determination of the revenue Lead days resulting from the prepayment of fixed monthly  
14                customer and Public Fire charges. In response to PSC-GEN-1\_2E, the Company  
15                provided its revenue Lead/Lag analyses of these 736,386 billing records in Excel format.  
16                I have evaluated the Company's determination of the prepayments associated with  
17                customer and Public Fire charges and found that the Company has not properly reflected  
18                the fact that these charges are billed in advance of service. For example, consider the  
19                first billing record within the Company's spreadsheet. The customer's meter was read on  
20                December 6, 2012 (signifying the end of the service period), and the bill was rendered on  
21                December 13, 2012. Recognizing there is a lag of a few days between the time a meter is

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1 read at the end of a billing cycle and the time required for the Company to calculate and  
2 render a bill, to be conservative, the end of this billing cycle is determined to be  
3 December 13, 2012 (instead of the read date on December 6, 2012). Therefore, the  
4 beginning of this bill cycle was approximately 30 days prior to December 6, 2012, or  
5 about November 6, 2012. Payment of this particular bill was received on January 2,  
6 2013.

7 The Company's Lead/Lag study fails to recognize that the payment received on  
8 January 2, 2013 reflects a prepayment for services yet to be rendered during the second  
9 half of December and first half of January; i.e., the next billing cycle. Since customer  
10 and Public Fire charges are billed in advance, by definition, there will be "Lead" days  
11 associated with these charges on any bill unless the customer does not pay its bill more  
12 than 30 days after the end of the current billing cycle. In this example, we can see that  
13 the billing cycle ended on December 13, 2012, such that the subsequent billing cycle  
14 covers the period of approximately December 14, 2012 through January 13, 2013. On  
15 January 2, 2013, the Company received payment for customer and Public Fire charges  
16 rendered during the December 14, 2012 through January 13, 2013 period. However, for  
17 this particular bill, Artesian has utilized a revenue "Lag" associated with these  
18 prepayments of 13 days.

19 To correct for the Company's error I have calculated the Lead days associated  
20 with the prepayment of customer and Public Fire charges as follows:

21 (Payment Date minus Bill Account Date) minus 15 days

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1 Utilizing the example discussed above, the payment date January 2, 2013 minus the bill  
2 account date December 13, 2012 is a Lag of 20 days. However, recognizing that there is  
3 a 15-day Lead due to the prebilling of these charges, this results in a net Lag of 5 days  
4 (15-day Lead minus 20-day Lag). I have corrected for the Company's computational  
5 error associated with customer/Public Fire revenue collection for each of the 736,386  
6 bills rendered with the Company's Lead/Lag study.

7 **Q. WHAT IMPACT DOES YOUR CORRECTION HAVE ON THE TOTAL**  
8 **LEAD/LAG DAYS ASSOCIATED WITH REVENUE COLLECTION?**

9 A. Whereas the Company calculated a total revenue Lag of 38.49 days (usage plus  
10 customer/Public Fire charges combined), I have calculated a total revenue Lag of 35.22  
11 days. My adjusted revenue Lag, applied to the Company's entire Lead/Lag analysis,  
12 results in a \$444,000 reduction in the CWC requirement. In order to reflect my  
13 adjustments to the Company's revenues and expenses, an additional minor adjustment is  
14 required that decreases the Company's CWC requirement by \$12,000. My total  
15 adjustment to CWC – reduces the Company's CWC requirement by \$457,000, as shown  
16 in Schedule GAW-6. Note that my corrections relating to revenue Lead days involve  
17 736,386 records and are contained in two separate Excel spreadsheets, which are  
18 available upon request.

19 **4. Total Rate Base**

20 **Q. PLEASE SUMMARIZE AND COMPARE THE COMPANY'S PROPOSED RATE**  
21 **BASE WITH YOUR RECOMMENDED RATE BASE.**

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1 A. The Company's supplemental proposed rate base is \$221,242,816, while my  
2 adjustments to the Company's proposed amounts result in a total rate base of  
3 \$212,602,251.

4

5 **B. Operating Income**

6 **1. Operating Revenues**

7 **Q. DOES ARTESIAN PROPOSE ANY REVENUE ADJUSTMENTS TO ITS**  
8 **ACTUAL TEST YEAR REVENUES IN THIS CASE?**

9 A. Yes. The Company has adjusted its actual test year revenues to reflect: (a)  
10 customer growth that occurred during the test year; (b) expected customer growth from  
11 the end of the test year through the end of the test period (September 30, 2014); and (c) a  
12 normalized level of water usage (thousands of gallons) per customer.

13 **Q. IS THE GENERAL CONCEPT OF EACH OF THE COMPANY'S REVENUE**  
14 **ADJUSTMENTS APPROPRIATE FOR RATEMAKING PURPOSES?**

15 A. Yes. Because the Company is requesting an end of test period rate base  
16 (investment), it is appropriate to also reflect the number of customers as of the end of the  
17 test period for revenue purposes. Furthermore, because average water usage tends to  
18 vary from year-to-year, primarily due to weather, it is appropriate to normalize actual  
19 usage per customer to a "normal" or average usage per customer based on several years  
20 of observations. In this regard, I concur with the Company's conceptual framework for  
21 adjusting historic test year revenues. However, I do disagree with the methods and

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1 manner in which the Company has adjusted for customer growth and usage  
2 normalization.

3 **Q. HAVE YOU BEEN ABLE TO VERIFY AND REPLICATE ARTESIAN'S**  
4 **REVENUE NORMALIZATION ADJUSTMENTS?**

5 A. No.

6 **Q. PLEASE EXPLAIN.**

7 A. A critical aspect of evaluating the veracity of a public utility's application for an  
8 increase in rates is the ability to fully understand the methods it used to derive its  
9 requested rate increase, as well as verify the dollar amounts claimed or requested within  
10 the rate application. Throughout the discovery process in this case, an inordinate amount  
11 of time and effort was spent in an attempt to understand and verify the Company's  
12 proposed pro forma test period sales revenues under current rates.<sup>1</sup>

13 Remember that there are two basic components to the Company's revenue  
14 adjustment approach (customer growth and usage normalization). In DPA-RR-12, I  
15 requested "all workpapers and analyses specifically showing how AWC developed its  
16 Customer Growth Adjustment." The Company's initial response simply referred to the  
17 workpapers for Schedule DLV 3A-1 provided in response to PSC-GEN-1. It was  
18 determined that the so-called "workpapers" were actually summaries of some other  
19 analyses that had not been provided. After a conference call with Artesian's technical  
20 and legal personnel, the Company provided an updated response to DPA-RR-12 that

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<sup>1</sup> Pro forma revenues at current rates serve as a foundation for any required increase (decrease) in rates.

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1 indicated its customer growth adjustment was based on the number of total customers at  
2 the end of the test year (December 31, 2013), escalated at an annual growth rate of 1%  
3 (0.75% for nine months through September 30, 2014). With this supplemental response,  
4 I was able to evaluate the approach and reasonableness of the Company's customer  
5 growth adjustment.

6 A much different situation exists regarding the Company's usage normalization  
7 adjustment. In DPA-RR-10, I requested the Company to provide:

8 [a]ll records, analyses, workpapers, algorithms, etc. utilized to develop  
9 AWC's Revenue Normalization Adjustment and Customer Growth  
10 Adjustment. In this response, provide a unique physical location identifier  
11 for each customer record so that it will be possible to determine changes in  
12 individual customer accounts at the same physical location. Provide all  
13 data relied upon (by individual customer) in electronic format in Microsoft  
14 Excel or Microsoft Access if possible, with all data, formulas and link  
15 intact. If the data is not available in Microsoft format, provide it in ASCII  
16 common delimited or fixed field format with all fields defined.  
17

18 The Company's response to this request was as follows:

19 The data requested is unduly burdensome to provide. The information  
20 requested exists within the revenue model developed and run using the  
21 customer billing system data base. The program has not been altered in  
22 the manner in which it calculates the various revenue components between  
23 this case and the last four base rate case proceedings, except that the  
24 Company could only readily access three years of history for each  
25 customer given the change in billing systems. In addition, rate structures  
26 may have changed during that time period which would also necessitate a  
27 change to account for different rate classes. The workpapers and output  
28 from the model are provided in electronic form in response to PSC-GEN-1  
29 on the disk labeled "Responses To Initial Data Requests, Electronic  
30 Documents." Certain relevant work papers are produced in hard copy for  
31 in response to PSC-RR-2.  
32

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1           It should be noted that the Company's referenced "output" and "workpapers"  
2           were nothing more than summaries of the Company's normalization analysis. As is  
3           obvious from the Company's response, it was impossible to fully understand, let alone  
4           verify and replicate, Artesian's proposed usage normalization adjustment. As a result,  
5           several telephone conference calls ensued between the Company, its legal counsel, DPA  
6           legal counsel, and me. During these conference calls, I explained my desire to fully  
7           understand, verify, and replicate, the Company's normalization adjustment.

8           My limited understanding of the Company's revenue normalization methodology  
9           was based on pages 16-18 of Company witness David Valcarengi's direct testimony. It  
10          appears from Mr. Valcarengi's testimony that the Company's normalization  
11          methodology is conceptually very simple. However, because this purported methodology  
12          is applied to individual bills during the test year (700,000+), the amount of data involved  
13          in the Company's analysis was expected to be rather extensive.

14          During our initial telephone conference, I explained to the Company that in this  
15          day and time of computerization, converting data files from a mainframe to a PC-  
16          readable format is a simple task.<sup>2</sup> Because there were no information technology  
17          company representatives on the initial conference call, the Company could not explain  
18          why my request for information could not be reasonably provided. Instead, the Company  
19          offered one of two solutions. First, the Company indicated that it would make its records  
20          and information available in its corporate office in Delaware. I explained this would be

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<sup>2</sup> Data and output is normally converted from mainframe to PC-readable format utilizing ASCII format, which is readily available to any mainframe system.

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1 of no use since the calculations are embedded within programming code internal to the  
2 program utilized such that simply looking at a computer screen in Delaware would  
3 provide no more information than I already had. The Company then offered a second  
4 alternative: providing a “sample” of records utilized to normalize usage. I indicated that  
5 a sample would not satisfy my need to verify the Company’s calculations because such a  
6 sample would simply verify the exceptionally simple arithmetic espoused by Mr.  
7 Valcarengi in his direct testimony. I explained that my objective was to verify the total  
8 amount of the Company’s revenue normalization adjustment shown in Schedule DLV  
9 3A-1.

10 **Q. DID YOU HAVE SUBSEQUENT CONVERSATIONS WITH THE COMPANY**  
11 **REGARDING YOUR ATTEMPT TO UNDERSTAND, VERIFY, AND**  
12 **REPLICATE THE COMPANY’S PROPOSED USAGE AND REVENUE**  
13 **NORMALIZATION ADJUSTMENT?**

14 **A.** Yes. A few days after our initial conference call, DPA and Company  
15 representatives and I had a second conference call in which the Company agreed to make  
16 its information technology experts available to explain and discuss the Company’s  
17 revenue normalization methodology, approach, and calculations. In a third telephone  
18 conversation, I spoke with Pierre Anderson, Artesian Vice President of Information  
19 Technology. Mr. Anderson explained that the procedures involved in the Company’s  
20 usage normalization adjustment are much more detailed and complicated than those  
21 portrayed by Mr. Valcarengi. Indeed, Mr. Anderson explained that the Company’s

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1 usage normalization adjustment is a subcomponent of the Company's budgeting model  
2 wherein the revenue normalization procedure alone involves more than 10,000 lines of  
3 programming code. It should be noted that after the amount of time and effort previously  
4 devoted to this issue of usage normalization, when the Company finally made Mr.  
5 Anderson available, he was exceptionally cooperative in attempting to accommodate my  
6 request.

7 Mr. Anderson explained that the Company's revenue and usage normalization  
8 algorithm was developed several years ago and is admittedly a bit archaic given the use  
9 of some 10,000 lines of programming code. Mr. Anderson then walked me through the  
10 relevant documentation supporting the actual methodology the Company used to  
11 normalize usage and revenue. The Company subsequently provided this narrative on a  
12 confidential basis and is provided in the Confidential Appendix to my testimony. As can  
13 be seen from this narrative description of the actual methodology employed, it is much  
14 more complicated and involved than one would think from Mr. Valcarengi's testimony.

15 Given the complexity of the documentation provided by the Company as well as  
16 the fact that the Company's algorithm consisted of some 10,000 lines of programming  
17 code, it was determined that further efforts to replicate the Company's analysis would be  
18 unreasonable, if not futile.

19 **Q. ARE USAGE AND REVENUE NORMALIZATION PROCEDURES AND**  
20 **METHODS USUALLY THIS COMPLICATED, CUMBERSOME, AND**  
21 **VIRTUALLY IMPOSSIBLE TO REPLICATE?**

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1 A. No. In fact, in my 34 years of practicing public utility regulation and sales  
2 forecasting, I have never seen a usage normalization procedure so convoluted and  
3 entangled with needless mainframe computer calculations and programming code as that  
4 utilized by Artesian. Indeed, usage normalization adjustments are normally very straight-  
5 forward and relatively simple in concept and approach. That is, the analyst is simply  
6 attempting to adjust a utility's total actual sales volumes (usage) due to anomalies that  
7 may have occurred during a particular test period. The procedures universally used and  
8 accepted in the industry involve the simple averaging of usages per customer by class  
9 over the course of several years or the use of linear regression techniques to model class  
10 weather sensitivity of usage which are then applied to normal weather patterns.

11 **Q. NOTWITHSTANDING YOUR INABILITY TO VERIFY OR REPLICATE THE**  
12 **COMPANY'S PROPOSED REVENUE ADJUSTMENTS, WERE YOU ABLE TO**  
13 **USE INDUSTRY ACCEPTED APPROACHES TO EVALUATE THE**  
14 **REASONABLENESS OF THE COMPANY'S PROPOSED REVENUE**  
15 **ADJUSTMENTS?**

16 A. Yes.

17 **Q. PLEASE DISCUSS YOUR EVALUATION AND ANALYSIS OF THE**  
18 **COMPANY'S CUSTOMER GROWTH ADJUSTMENT.**

19 A. I first compared the Company's pro forma level of customers by class at the end  
20 of the test period (September 30, 2014), which is a component of its pro forma revenue  
21 adjustment. These customer counts by class were provided in response to PSC-RR-2,

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1       pgs. 549 through 557, and are shown in Column (1) of my Schedule GAW-7.4 and I then  
2       compared these pro forma number of customers by class with actual customers reported  
3       as of July 2014 provided in response to DPA-RR-101. The Company's actual number of  
4       customers by class as of July 2014 are provided in my Schedule GAW-7.3. Because the  
5       residential and commercial classes represent 97% of the Company's number of  
6       customers, I will focus my discussion on these two classes.

7               As can be seen below, the actual number of customers as of July 2014 exceeds the  
8       Company's forecasted number of customers as of September 30, 2014:

<u>Class</u>	<u>Artesian Forecasted Pro Forma Customers (9/30/14)</u>	<u>Actual Customers (7/30/14)</u>
Residential	75,312	76,868
Commercial	2,538	2,618

9  
10  
11  
12  
13  
14       It is apparent that Artesian has understated its customers through the end of the test  
15       period. Because actual customer numbers were only available through July 2014, I then  
16       estimated the growth and number of customers for the remaining two months of the test  
17       period (August and September). To derive my customer growth adjustment for the  
18       remaining two months of the test period, I evaluated the growth in number of customers  
19       the Company has achieved under multiple alternative compound growth rate periods. I  
20       then selected the lowest (most conservative) growth rate factor and annualized this factor  
21       for the remaining two months of growth. These calculations are shown in my Schedule

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1 GAW-7.3 and result in a selected annual growth rate for the residential class of 1.47%  
2 and an annualized growth rate for the commercial class of 0.89%. These annualized  
3 growth rates were then applied to the actual number of customers as of July 2014. The  
4 end results of my customer adjustments are provided in my Schedule GAW-7.4, Column  
5 (3).

6 **Q. HOW WAS YOUR NUMBER OF CUSTOMERS ADJUSTMENT THEN**  
7 **CONVERTED INTO RATE REVENUES?**

8 A. There are three rate revenue components associated with customer growth: fixed  
9 monthly customer charge revenue; Public Fire Protection revenue; and, usage charge  
10 revenue associated with these additional customers. With regard to fixed monthly  
11 charges (customer and Public Fire), I multiplied my customer adjustment by the weighted  
12 average customer charge and Public Fire charge by rate class. With respect to additional  
13 usage charge revenue resulting from customer growth, I evaluated this revenue on a class  
14 by class basis. Specifically, I multiplied my customer adjustment by my normalized  
15 usage per customer per year and then multiplied this amount by the weighted average  
16 usage charge by rate class. The additional revenue at current rates associated with my  
17 customer growth adjustments is \$1,478,578, as shown in Column (5) of my Schedule  
18 GAW-7.

19 **Q. PLEASE DISCUSS YOUR EVALUATION AND ANALYSIS OF THE**  
20 **COMPANY'S USAGE NORMALIZATION ADJUSTMENT.**

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1 A. Artesian's water sales during 2013 were adversely impacted by substantially  
2 milder and wetter than normal weather. In its fourth quarter and 2013 Year End Earnings  
3 press release, the Company reported:

4 Water sales revenues declined 2.8%, to \$61.8 million in 2013 from \$63.6  
5 million in 2012. The decrease in water sales resulted from the wet  
6 weather through the spring and summer, which included a record rainfall  
7 of 12.5 inches in June that broke a 118 year old state record and the fifth  
8 wettest summer since records began in 1895.  
9

10 I calculated the average annual water usage per customer, by rate class for the last three  
11 years (the same time period reportedly utilized by Artesian) to develop a normalized  
12 usage per customer per year.<sup>3</sup> My normalized annual usage per customer by class is  
13 provided in Column (7) of my Schedule GAW-7.1. A detailed comparison for each class  
14 of my calculated normalized annual usages per customer to those used by Artesian is  
15 shown in Columns (2) and (3) of my Schedule GAW-7.2 and are summarized below for  
16 the residential and commercial classes:

17

Normalized Annual Usage Per Customer		
(000 gallons)		
Class	Artesian	DPA
Residential	50.4	52.3
Commercial	290.7	288.8

18  
19  
20

21 As a result of my analyses, I have determined that on an overall Company basis, Artesian  
22 has understated normalized water usage.

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<sup>3</sup> I would have preferred to use a five-year average. However, corresponding data by class is not available for 2009 and 2010.

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1 **Q. HOW DID YOU CONVERT YOUR USAGE NORMALIZATION ADJUSTMENT**  
2 **TO SALES REVENUES?**

3 A. I multiplied the difference between my normalized usage per customer and that  
4 used by Artesian (by individual class) by the weighted average usage rate per thousand  
5 gallons for each class to arrive at a normalization revenue adjustment. It should be noted  
6 that my revenue normalization adjustment is somewhat understated due to the inverted  
7 block rate structures of Artesian. That is, I calculated the weighted average usage rate  
8 based on actual 2013 data. We know that average customer usage was lower than normal  
9 during 2013, such that the incremental (additional) usage that would have occurred under  
10 normal circumstances would have been priced at the higher (and more expensive) usage  
11 rate blocks. However, I have simply utilized the weighted average usage rate for all  
12 incremental usage. My normalization revenue adjustment is shown in my Schedule  
13 GAW-7 and totals \$1,071,911.

14 **Q. DO YOU HAVE ANY CONCLUDING COMMENTS REGARDING THE**  
15 **COMPANY'S PROPOSED SALES REVENUE ADJUSTMENTS?**

16 A. Yes. As discussed above, I was unable to fully understand, verify, or replicate,  
17 the Company's revenue adjustments. As such, I am unable to advise the Commission as  
18 to a specific calculation within the Company's normalization procedures that causes the  
19 downward bias I have determined. However, the procedures I used are accepted industry  
20 practice, are transparent, and are readily verifiable. In this regard, I recommend the

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1 Commission direct Artesian to utilize industry accepted procedures that are transparent,  
2 verifiable, and can be reasonably reproduced in future rate cases.

3 **Q. DO YOU HAVE ANY OTHER REVENUE ADJUSTMENTS TO THE**  
4 **COMPANY'S TEST PERIOD LEVELS AT CURRENT RATES?**

5 A. Yes. Consistent with the Company's approach, I have adjusted finance charge  
6 revenue by \$5,356 to reflect my customer growth and revenue adjustments. This  
7 calculation is shown at the bottom of my Schedule GAW-7.

8 **2. Salaries & Wages**

9 **Q. PLEASE EXPLAIN YOUR ADJUSTMENTS TO THE COMPANY'S PRO**  
10 **FORMA LEVEL OF SALARIES AND WAGES EXPENSES.**

11 A. I have made two adjustments related to salaries and wages expense. The first  
12 adjustment relates to bonuses and incentive compensation, while my second adjustment  
13 relates to the Company's proposed payroll wage escalation (inflation) rate.

14 With regard to bonuses and incentive compensation, the Company provided each  
15 employee's 2013 test year total payroll amount that included base pay, overtime pay, as  
16 well as "other pay." In DPA-RR-102b, the Company was asked to provide all documents  
17 related to the Board of Directors' year-end bonus awards to employees to recognize the  
18 contributions in achieving overall Company performance for each of the last five years.  
19 In its response the Company provided the Board's resolution to approve a bonus of \$800  
20 for each employee with at least six months of service. This bonus was referred to as a  
21 "holiday bonus." However, in examining the total bonuses paid by individual employee,

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1 I observed that the “other” compensation was significantly higher than these \$800  
2 holiday bonuses.

3 In DPA-RR-102a, we requested the Company to provide all documents, manuals,  
4 etc. relating to executive and employee incentive compensation and/or bonus programs.  
5 The Company’s response referred to its responses to DPA-RR-66a and DPA-RR-81. The  
6 response to DPA-RR-81 simply refers to the officer medical reimbursement plan, while  
7 the response to DPA-RR-66a refers only to the Company’s executive stock option plan.  
8 No other information was provided relating to incentive compensation, incentives, or  
9 bonuses paid to employees, although I note that in response to DPA-RR-102d, the  
10 Company did report that “non-executive bonuses” associated with achieving Company  
11 performance during 2013 totaled \$158,022. However, this amount does not include  
12 executive bonuses associated with achieving financial performance.

13 Based on the testimony of DPA witnesses in prior cases, the Company’s inability  
14 or refusal to provide details supporting incentive compensation is a recurring problem.  
15 As a result, I have adjusted the Company’s test year payroll for “other compensation” to  
16 reflect only the \$800 holiday bonus for each employee. Bonuses paid as a result of  
17 achieving Company financial performance should be borne, and paid for, by  
18 shareholders, as they are the beneficiary of such performance standards. I note that the  
19 Commission removed non-executive incentive compensation from Delmarva’s revenue  
20 requirement in its most recent rate case in part because payments under the plan would  
21 only be made if Delmarva achieved a specific earnings level. Therefore, regardless of

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1           how well the employee performed, if Delmarva did not achieve the earnings threshold in  
2           the plan, the employee would receive no payment.

3                       With regard to the Company's proposed payroll wage inflation rate, the Company  
4           has selected an escalation rate of 3.00% to inflate salaries and wages beyond those paid in  
5           2013. It is my understanding that this Commission does not allow inflation adjustments  
6           and that in Delmarva's last rate case, the Commission only allowed an annualization of  
7           pay increases authorized during the test period. As such, I have eliminated the  
8           Company's proposed 3.00% wage inflation adjustment.

9                       My payroll expense adjustments are provided in my Schedule GAW-8 and  
10          reduces salaries and wages expenses by \$583,975. The details supporting my  
11          adjustments are not provided since they show individual employee compensation levels.  
12          However, these details are available on a confidential basis upon request.

13                       **3.    Pensions, Benefits, and Other Payroll-Related Expenses**

14   **Q.    ARE THERE OTHER EXPENSE ADJUSTMENTS AFFECTED BY, OR**  
15   **RELATED TO, YOUR SALARIES AND WAGES ADJUSTMENT?**

16   **A.**Yes. Payroll taxes and pensions are affected by my salaries and wages expense  
17          adjustment. With regard to my payroll tax adjustment, I have followed the Company's  
18          format and limited FICA to the statutory maximum amount (\$117,000). Furthermore, I  
19          have made a very minor adjustment relating to Federal Unemployment Taxes in which  
20          the Company appears to have made a computational error. Federal Unemployment Taxes

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1 are assessed at a rate of 0.6% on the first \$8,000 of an employee's payroll and generally  
2 limited to \$42 per employee per year.

3 With regard to pension expense, I have utilized the Company's 5% pension  
4 contribution and applied this to my adjustment to payroll. In addition, I have also made a  
5 minor positive adjustment (\$1,632) to the Company's pro forma Workers' Compensation  
6 Insurance expense as a result of an arithmetic error within the Company's analysis. My  
7 payroll tax, pensions, and workers' compensation adjustments are also shown in my  
8 Schedule GAW-8. My payroll tax adjustment – results in a reduction of \$46,908, my  
9 pension adjustment – results in a reduction of \$38,881, and my workers' compensation  
10 insurance adjustment results in an increase of \$1,632.

11 4. **Purchased Power Expense**

12 **Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO PURCHASED POWER**  
13 **EXPENSE.**

14 **A.** In its supplemental filing, the Company proposed a pro forma adjustment to  
15 purchased power costs of \$36,400. In response to PSC-RR-32, the Company stated that  
16 it had received newer information concerning its purchased power costs and revised its  
17 adjustment downward to \$10,082. Therefore, my adjustment to purchased power is to  
18 reduce this expense by \$26,318 (\$10,082 minus \$36,400) and is shown in my Schedule  
19 GAW-9.

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1           **5.     Chester Water Authority (“Chester”) Legal Costs**

2 **Q.     PLEASE EXPLAIN THE COMPANY’S REQUESTED RATEMAKING**  
3 **TREATMENT RELATING TO ITS LITIGATION AGAINST CHESTER.**

4 **A.**           Artesian has purchased water from Chester for a number of years. In 2007,  
5 Chester notified Artesian that it expected to raise its wholesale rates to the Company by  
6 about 27% over a three year period. In 2010, Artesian filed suit in federal court  
7 contesting the rates charged by Chester. This litigation continued through at least the  
8 middle of 2013 with a final court decision still pending.

9           Artesian is seeking recovery of some \$1.647 million of litigation costs associated  
10 with this lawsuit and proposes to recover these litigation costs from ratepayers over a  
11 seven year period.

12 **Q.     IS IT APPROPRIATE FOR RATEPAYERS TO FUND THESE PRIOR**  
13 **EXPENDITURES?**

14 **A.**           No, for two reasons. There are several reasons why it is inappropriate for  
15 Artesian’s retail rates to reflect the cost of the Chester litigation. First, approving  
16 Artesian’s request in this case for rates to reflect costs incurred up to four to five years  
17 ago is retroactive ratemaking, which is clearly at odds with accepted ratemaking  
18 principles unless supported by prior approval of deferred accounting treatment for  
19 ratemaking purposes. Artesian is clearly familiar with the administrative practices and  
20 procedures of this Commission. In this regard, the Company incurred these litigation  
21 costs going back to at least 2010. Furthermore, the Company represents that it attempted

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1 to resolve this issue with Chester going back to 2007. However, it is my understanding  
2 that the standard practice before this Commission relating to requests for deferred cost  
3 recovery is that utilities must file for, and receive, an accounting order requesting  
4 deferred accounting within a reasonable time period. In this way, the Commission can  
5 evaluate the merits of such requests in a timely fashion. To the best of my knowledge,  
6 Artesian did not request such an accounting order nor had it previously notified either  
7 Staff or the DPA that such a request for retroactive ratemaking would be made in the  
8 future. Perhaps most troubling is the fact that Artesian had a rate case subsequent to the  
9 filing of its lawsuit in 2010.<sup>4</sup> Artesian's last rate case continued through the end of the  
10 third quarter of 2011. At no time did Artesian mention or request deferred recovery of  
11 these Chester legal costs, even though it was clearly incurring such costs at the time that  
12 application was filed.

13 The second reason is that these costs are clearly non-recurring. Ratemaking  
14 principles dictate that the establishment of rates is based on forward-looking costs and  
15 reflect only those costs that are expected to recur.

16 **Q. HAS THIS COMMISSION PROVIDED GUIDANCE REGARDING**  
17 **RETROACTIVE RATEMAKING AND UTILITIES' REQUESTS FOR**  
18 **RECOVERY OF PREVIOUSLY INCURRED COSTS?**

19 **A.** Yes. In Order Nos. 7838 (PSC Docket No. 10-171) and 4383 (PSC Docket No.  
20 96-164), both involving United Water Delaware ("United"), the Commission addressed

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<sup>4</sup> PSC Docket No. 11-207.

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1 United's request for retroactive ratemaking and deferred accounting due to prior lost  
2 revenue (Order No. 7838) and increased purchased water costs from Chester (Order No.  
3 4383). In both of these cases, the Commission rejected the Applicant's request for  
4 deferred accounting and found:

5 Ratemaking is normally forward-looking: a utility's rates are set for the  
6 future based upon an analysis of historical revenues and expenses during a  
7 test year or a portion of a test period, with adjustments for annualizations,  
8 normalizations, and known and measurable changes. As such the  
9 ratemaking procedure does not look to adjust for past losses or gains to  
10 either the utility or consumers. [Orders at 10-11 and 4, respectively]  
11

12 Furthermore, the Commission stated:

13 [t]he Commission may, in some instances, authorize the deferral of costs  
14 not included in previously approved rates for consideration in a  
15 subsequent rate case. However, because such deferred accounting  
16 treatment goes against traditional principles of ratemaking, the  
17 Commission believes that this authority should be exercised *sparingly* and  
18 only in situations where it is *necessary*. [Orders at 11 and 5, respectively]  
19

20 **Q. IS ARTESIAN'S REQUEST FOR THE RECOVERY OF ITS PRIOR LEGAL**  
21 **COSTS ASSOCIATED WITH THE CHESTER LITIGATION NECESSARY TO**  
22 **PRESERVE THE FINANCIAL INTEGRITY OF THE COMPANY?**

23 **A.** No. Artesian will remain financially healthy and viable absent any retroactive  
24 recovery of its Chester litigation costs from ratepayers.

25 **Q. DID SHAREHOLDERS HAVE A VESTED INTEREST IN PURSUING**  
26 **LITIGATION AGAINST CHESTER?**

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1 A. Yes. The fundamental principle and end-result of rate regulation is nothing more  
2 than establishing regulated prices. However, as is the case with any business enterprise, a  
3 firm will seek to maximize profits by minimizing costs. In this regard, Artesian's efforts  
4 to reduce purchased water costs are aimed to increase profits, wherein lower expenses  
5 associated with purchased water fall straight to the bottom line (before income taxes) to  
6 benefit shareholders between rate cases. As acknowledged by Artesian, these Chester  
7 legal costs have been incurred each year since at least 2010.

8 **Q. DID ARTESIAN INCUR CHESTER LITIGATION COSTS DURING THE TEST**  
9 **YEAR ENDING DECEMBER 31, 2013?**

10 A. Yes. During the test year, Artesian booked \$813,304 as expenses associated with  
11 the Chester litigation.

12 **Q. SHOULD THE TEST YEAR EXPENSES ASSOCIATED WITH THE CHESTER**  
13 **LITIGATION BE INCLUDED IN THIS CASE FOR RATEMAKING PURPOSES?**

14 A. No. This case is unusual and the costs associated with pursuing litigation against  
15 Chester are certainly non-recurring in nature.

16 **Q. WHAT IS YOUR RECOMMENDATION CONCERNING THE COMPANY'S**  
17 **REQUEST FOR RATE RECOVERY OF CHESTER LEGAL COSTS?**

18 A. I recommend Artesian's request for rate recognition of Chester litigation costs be  
19 disallowed. Therefore, I have decreased O&M expenses by \$235,264 as shown in my  
20 Schedule GAW-10.

21

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1           **6.     Purchased Water Expense**

2   **Q.     PLEASE EXPLAIN YOUR ADJUSTMENT TO PURCHASED WATER**  
3   **EXPENSES.**

4   **A.**In its supplemental filing, the Company proposes a pro forma increase of  
5   \$347,348 to test year purchased water expenses. Its proposed adjustment is based on an  
6   assumed 10% increase in the rates assessed by Chester that “are expected to occur on or  
7   about July 2014.” According to Mr. Valcarenghi, the Company’s projected 10% increase  
8   is “in line with prior increases that have been levied by Chester.” The Company provided  
9   no additional support for its proposed \$347,348 adjustment and is little more than  
10   speculation. Therefore, I have reversed this adjustment as it is not known and  
11   measurable, nor is it supported with any reasonable analysis. However, if the Company  
12   can provide documentation supporting any increases levied by Chester prior to  
13   September 30, 2014, I will accept these new charges.

14           **7.     Llangollen Well Expense**

15   **Q.     PLEASE EXPLAIN THE COMPANY’S EXPENSE ADJUSTMENT**  
16   **ASSOCIATED WITH THE LLANGOLLEN WELL.**

17   **A.**The Company’s Llangollen Well has elevated levels of dioxane. As a result, the  
18   Company is making capital expenditures to install additional oxidation equipment to  
19   reduce dioxane found in this well. The treatment process will involve the addition of  
20   hydrogen peroxide as well as ultra-violet (“UV”) sterilization/irradiation. When this new  
21   equipment is installed, the Company will incur variable expenses associated with the

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1 utilization of hydrogen peroxide as well as the ongoing repair and maintenance of UV  
2 bulbs and the additional electricity energy required to power the UV equipment. The  
3 Company estimates the additional annual variable cost of the Llangollen Well treatment  
4 to be \$120,657.

5 **Q. DO YOU RECOMMEND ANY ADJUSTMENTS TO THE COMPANY'S**  
6 **ESTIMATED VARIABLE COST ASSOCIATED WITH THE LLANGOLLEN**  
7 **WELL TREATMENT?**

8 A. Yes. The Company's \$120,657 expense estimate is based on a report prepared by  
9 the consulting engineer firm of Hatch Mott MacDonald (provided in response to PSC-  
10 RR-2, page 895). In developing its variable cost estimate, Hatch Mott MacDonald  
11 assumed continuous operation of the new equipment's maximum capacity of 1,500  
12 gallons per minute. In other words, the Company's proposed variable cost estimate is  
13 based on an assumption of the Llangollen Well operating at a 100% capacity factor each  
14 and every hour of the year. I have evaluated the reasonableness of this assumed 100%  
15 capacity factor by reviewing the output of the Llangollen Well during the last three years.  
16 The following represents the annual output of the Llangollen Well during the 2011  
17 through 2013 period:

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Year	Annual Llangollen Well Utilization	
	MGD	GPM
2011	1.451	1,007.639
2012	1.103	765.972
2013	1.002	695.833
Average	--	823.148
Capacity Factor (823 divided by 1,500)		54.88%

Based on the historic utilization of the Llangollen Well, I have adjusted the Company's assumed 100% capacity factor to 54.88%. This results in a reduction to test period O&M expense \$54,445, as shown in my Schedule GAW-12.

**8. Rate Case Expense**

**Q. WHAT LEVEL OF RATEMAKING EXPENSE IS THE COMPANY REQUESTING IN THIS CASE?**

A. Artesian is requesting an annual rate case expense of \$544,908, which reflects its "amortization" of expected rate case expenses as well as a provision for a compensation study that has not been conducted or commissioned. From this \$544,908 requested annual expense, the Company has deducted \$105,445 of amortized rate case expenses associated with Docket Nos. 08-96 and 11-207. As a preliminary matter, it is my understanding that the practice of this Commission is to normalize rate case expenses such that amortizations are not allowed such that rate case expenses may not be pancaked on top of each other for ratemaking purposes. In this regard I agree with the Company's elimination of its per books amortization of prior rate case expenses totaling \$105,445.

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**ARTESIAN WATER COMPANY, INC.**  
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1 **Q. DO YOU RECOMMEND ADJUSTMENTS TO THE COMPANY'S REQUESTED**  
2 **RATE CASE EXPENSE ALLOWANCE IN THIS CASE?**

3 **A.** Yes. Artesian estimates the total cost of this rate case will be \$1,134,816 and is  
4 comprised of estimated costs for outside legal (\$600,000), outside consultants (\$92,816),  
5 Public Service Commission Staff charges to the Company (\$200,000), DPA charges to  
6 the Company (\$150,000), printing and miscellaneous charges (\$17,000), and a new  
7 compensation study (\$75,000). The Company proposes to amortize all rate-case related  
8 costs over a period of two years while it proposes to amortize a compensation study over  
9 five years as shown in my Schedule GAW-13.

10 With regard to the individual components of the Company's rate case expense  
11 request, I have adjusted its allowable outside legal expenses to \$300,000. As shown in  
12 Footnote 2 of my Schedule GAW-13, the average outside legal costs during the last three  
13 rate cases was \$294,863. Furthermore, the Company's estimated outside legal expense of  
14 \$600,000 is based on 1,000 hours at a rate of \$600 per hour. While I am reluctant to  
15 quibble over the level of effort required by the Company's outside attorneys to represent  
16 its client, as well as its level of hourly rates, a cost of \$600,000 is simply excessive. A  
17 level of effort of 1,000 hours represents an attorney working for a half of a year on this  
18 case full-time, 8 hours a day, 5 days a week for six months. Furthermore, an hourly rate  
19 of \$600 should not reflect the hourly rates of all outside attorneys, including associates,  
20 assigned to this case. As a result of the historical cost incurred for outside legal counsel  
21 as well as what would represent a reasonable level of effort and hourly rate for outside

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1 legal counsel, I recommend that ratepayers only be responsible for up to \$300,000 of  
2 outside legal costs associated with this rate case.

3 The next rate case adjustment I recommend relates to charges from the Public  
4 Service Commission to Artesian. Wherein the Company has estimated an expense of  
5 \$200,000, I have determined that the average PSC charge to Artesian for the last three  
6 rate cases was \$151,596 (per response to DPA-RR-51d). Therefore, I recommend an  
7 allowable PSC charge level of no more than \$155,000.

8 My next rate case expense adjustment relates to DPA charges to the Company. I  
9 have been informed by the DPA that it has not, and will not, charge Artesian for its costs  
10 associated with this rate case. Therefore, I have eliminated the Company's request of  
11 \$150,000 associated with DPA charges.

12 With regard to the Company's request to include \$75,000 for a new compensation  
13 study, I recommend the disallowance of this entire amount. The Company has not  
14 conducted a compensation study since 2008, nor has it incurred any expenses associated  
15 with compensation studies. Furthermore, there is no evidence that the Company has  
16 commissioned a new study or plans to do so within the test period, or even in the  
17 foreseeable future. As a result of my rate case adjustments, my recommended total cost  
18 (before annual normalization) is \$564,816.

19 The next issue concerning allowable rate case expense for ratemaking purposes  
20 concerns the appropriate normalization period to be used. Whereas the Company has  
21 utilized a two-year period, I recommend a three-year normalization period. In

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1 determining this three-year normalization, I evaluated the frequency of rate cases since  
2 2008. The following table shows the frequency of Artesian's last three rate cases:

3

<u>Docket No.</u>	<u>Test Year</u>	<u>Frequency</u>
08-96	12/31/2007	--
11-207	12/31/2010	36 months
14-132	12/31/2013	36 months.

4  
5  
6

7 As can be seen above, Artesian tends to request a rate increase about every three years.  
8 As such, a rate case normalization period of three years is appropriate for ratemaking  
9 purposes. As a result of my rate case cost adjustments and three-year normalization  
10 period, I recommend a normalized annual rate case expense of \$188,272. From this  
11 amount I have subtracted the Company's amortization of prior rate case expenses of  
12 \$105,445 to arrive at an allowable normalized rate case expense for ratemaking purposes  
13 of \$82,827. My recommendations result in a decrease of \$356,656 to the Company's  
14 request, as shown in my Schedule GAW-13.

15 **9. Stock Options Expense**

16 **Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO THE COMPANY'S EMPLOYEE**  
17 **STOCK OPTIONS EXPENSE.**

18 **A.** The Company's test year expense levels reflect an employee stock options  
19 expense level of \$123,463. I have eliminated (reversed) this test year expense as it is not  
20 appropriate for ratepayers to bear these costs. By their very nature, employee stock  
21 options are related to, and are a function of, the financial performance of the utility.

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1 Indeed, stock options have little to no value if the financial performance and stock price  
2 of a firm is not enhanced. The beneficiaries of the Company's employee stock option  
3 plan are limited to shareholders in that ratepayers receive no benefits from this plan.

4 In response to PSC-RR-92, the Company provided Artesian Resources  
5 Corporation's 2005 Equity Compensation Plan (employee stock option plan). As stated  
6 in the purpose of the plan:

7 [t]he Company believes that the Plan will encourage the participants to  
8 contribute materially to the growth of the Company, thereby benefitting  
9 the Company's shareholders and will align the economic interests of the  
10 participants with those of the shareholders.  
11

12 Furthermore, as discussed previously, the Commission removed non-executive incentive  
13 compensation expense from Delmarva's revenue requirement in its order in Docket No.  
14 13-115.

15 **10. Professional, Social, and Service Club Dues**

16 **Q. HAS THE COMPANY INCLUDED EXPENSES ASSOCIATED WITH**  
17 **PROFESSIONAL, SOCIAL, AND SERVICE CLUB DUES WITHIN ITS RATE**  
18 **APPLICATION?**

19 **A.** Yes. As part of PSC Minimum Filing Requirement V.A, the Company provided  
20 an itemization of these dues expenses during the test year that total \$122,816. The  
21 Company's workpapers provided further detail of the itemized expenses

22 **Q. DO YOU RECOMMEND ANY ADJUSTMENTS TO THE COMPANY'S \$122,816**  
23 **TEST YEAR AMOUNT?**

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1     A.           Yes. While I have no objection to an appropriate level of these costs being  
2           reflected in rates since they largely reflect professional dues, many of the individual dues  
3           expensed by Artesian were for overall corporate membership or corporate benefit. My  
4           Schedule GAW-15 provides an itemization of these expenses during the test year. For  
5           those dues that are attributable to Delaware water operations, I have allowed 100%  
6           recovery of these expenses. For those dues that are for a corporate membership or  
7           involve the membership of a corporate officer (not solely attributable to Delaware water  
8           operations), I have allocated an amount to the Company's Delaware water operations.  
9           For example, the membership for the Society of Human Resource Management is for  
10          Artesian Resources overall human resources department. As such, I have allocated  
11          97.09% to Delaware's water operations. My Schedule GAW-15 shows the allocation  
12          factors I utilized for each membership or due such that the allocated amount to  
13          Delaware's water operations is \$115,083, which results in a reduction of \$7,733 to O&M  
14          expense.

15                   **11.    Donations**

16     **Q.    HAS THE COMPANY INCLUDED THE COST OF ITS CHARITABLE**  
17           **DONATIONS WITHIN ITS RATE INCREASE REQUEST?**

18     A.           Yes.

19     **Q.    SHOULD RATEPAYERS BE REQUIRED TO FUND ARTESIAN'S**  
20           **CHARITABLE DONATIONS?**

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1 A. No. While Artesian's charitable contributions may be civically admirable,  
2 ratepayers should not be required to fund these activities. Indeed, ratepayers can and do  
3 make their own charitable donations and should not be required to pay for them again  
4 through regulated monopoly water rates. To the extent Artesian elects to contribute to  
5 various charities, it should be done so at shareholders expenses. As such, I have reduced  
6 the Company's O&M expenses by \$45,825 to reflect the elimination of charitable  
7 donations as shown in my Schedule GAW-16.

8 **12. Interest Synchronization**

9 **Q. PLEASE EXPLAIN YOUR INTEREST SYNCHRONIZATION ADJUSTMENT.**

10 A. For ratemaking purposes, interest expense (as used for determining income taxes)  
11 is calculated as a utility's total rate base multiplied by the weighted cost of debt. Because  
12 I have made several adjustments to the Company's proposed rate base, it is appropriate to  
13 synchronize interest expense with my rate base adjustments. As shown in Schedule  
14 GAW-17, my interest synchronization adjustment reduces the Company's tax deductible  
15 interest expense by \$233,904, which has the effect of increasing State income taxes by  
16 \$20,350 and increasing Federal income taxes by \$74,744.

17 **Q. PLEASE SUMMARIZE YOUR REVENUE REQUIREMENT**  
18 **RECOMMENDATIONS.**

19 A. As shown in my Schedule GAW-2, I recommend a rate base of \$213,149,251.  
20 Artesian's net operating income at current rates of \$15,425,656 has produced a rate of  
21 return on rate base of 7.24%. When Dr. Woolridge's recommendation of a 7.31%

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1           allowable cost of capital is reflected, the Company's required increase in total operating  
2           revenues is \$263,753. This revenue increase is comprised of a required increase in water  
3           sales revenues of \$263,200 and finance charges of \$553.

4  
5   **IV.   RATE DESIGN**

6   **Q.   PLEASE DESCRIBE ARTESIAN'S CURRENT AND PROPOSED RATE**  
7   **STRUCTURE.**

8   A.           Artesian's current rate structure consists of a fixed customer charge, which varies  
9           by meter size, and an inverted three-block usage charge. In addition, the vast majority of  
10          Artesian's customer is subject to a Public Fire Protection charge, which is a fixed  
11          monthly rate, in addition to the customer charge.

12   **Q.   PLEASE EXPLAIN THE COMPANY'S PROPOSED CHANGES TO THE FIXED**  
13   **MONTHLY CUSTOMER CHARGE.**

14   A.           Artesian proposes to increase the 5/8" meter fixed customer charge by 9.76%,  
15          from \$13.22 to \$14.51 per month.

16   **Q.   FROM A PUBLIC POLICY PERSPECTIVE, HOW SHOULD FIXED MONTHLY**  
17   **CUSTOMER CHARGES BE ESTABLISHED?**

18   A.           In my opinion, customer charges should be established at a bare minimum level.  
19          Water utility consumers have no alternative to water supplies other than their regulated  
20          utility. Customers subscribe to Artesian's water service for the purpose of consuming  
21          water. In this regard, a pricing structure that is entirely or heavily based on the volume of

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1 water consumed best reflects the benefits each customer requires or elects to receive; i.e.,  
2 those that consume more water pay more than those that consume less water. A pricing  
3 structure that is heavily dependent on fixed monthly charges, therefore, violates this  
4 objective. Moreover, nothing is more basic to human existence than the need for potable  
5 water. A pricing structure that is heavily dependent on fixed monthly fees (charges)  
6 results in much higher costs of water for small volume (basic needs) users.

7 Finally, from a water conservation standpoint, if fixed customer charges are set  
8 unreasonably high, the corresponding volumetric charge will be set unreasonably low.  
9 These lower than proper volumetric charges will then provide a disincentive for water  
10 conservation since the variable price is lower than it would be with lower customer  
11 charges.

12 **Q. WHY DO UTILITIES SUCH AS ARTESIAN ADVOCATE HIGH FIXED**  
13 **MONTHLY CUSTOMER CHARGES?**

14 **A.** A fixed monthly customer charge represents a fee that is unavoidable by  
15 customers. As such, customer charges reflect guaranteed revenue recovery and,  
16 therefore, reduce the risk to the utility.

17 **Q. ARE THERE APPROACHES OR PROCEDURES THAT CAN BE USED TO**  
18 **EVALUATE THE REASONABLENESS OF FIXED CUSTOMER CHARGES?**

19 **A.** Yes. Fixed monthly customer charges should only reflect the reimbursement of  
20 costs associated with connecting a new customer and maintaining that customer's  
21 account. These costs include the return of the investment (depreciation) for a customer's

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1 service line and meter, and reimbursement of direct meter reading and customer billing  
2 expenses.

3 **Q. SHOULD FIXED MONTHLY CUSTOMER CHARGES ALSO INCLUDE A**  
4 **PROFIT PROVISION?**

5 A. A water utility is in the business of selling water, not simply connecting  
6 customers. As such, the level of profits (interest and equity return) a water utility earns  
7 should be tied to the direct function of its business purpose -- selling water.  
8 Remembering that the purpose of fixed fees is to reimburse a water utility for only those  
9 costs that are directly incurred to connect and maintain a customer's account, the interest  
10 and equity return component of a utility's revenue requirement is appropriately collected  
11 from the sale of water; i.e., its volumetric charges.

12 On the other hand, there is a cost associated with the capital employed to connect  
13 customers (their service lines and meters). As such, a return on this investment (profit)  
14 commensurate with the risk of collecting any such revenue may also be appropriate.

15 **Q. IS THE RISK ASSOCIATED WITH FIXED MONTHLY CUSTOMER CHARGES**  
16 **THE SAME AS THAT FOR VOLUMETRIC USAGE CHARGES?**

17 A. No. Customer charges represent guaranteed revenue to the utility, whereas usage  
18 charges are subject to additional risks such as weather and general economic conditions.  
19 Indeed, customer charge revenue is almost risk free. As such, if any evaluation of  
20 customer costs includes an equity profit provision, this "equity return" should reflect the  
21 minimal risk confronted in collecting these fixed fees.

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1   **Q.   HAVE YOU CONDUCTED AN ANALYSIS OF THE DIRECT COSTS OF**  
2   **CONNECTING AND MAINTAINING A CUSTOMER’S ACCOUNT?**

3   **A.**       Yes. I have conducted a direct customer cost analysis that includes the capital  
4   costs associated with connecting a new customer along with the direct expenses required  
5   to read meters and for customer billing. This analysis is presented in my Schedule GAW-  
6   18. This analysis uses a traditional revenue requirement approach to determine the  
7   monthly residential “customer” cost. As can be seen in Schedule GAW-18, I have  
8   included rate base (investment) associated with services and meters. In this analysis, I  
9   have included the depreciation expense associated with these rate base items as well as an  
10   interest return, equity return, and income taxes derived from the calculated equity return.<sup>5</sup>  
11   My analysis also includes a provision for the reimbursement of meters and services O&M  
12   expenses, as well as for meter reading, billing, and customer records expenses. My  
13   customer cost analysis results in a calculated monthly 5/8” meter customer cost of \$8.66,  
14   which is considerably less than the current customer charge of \$13.22.

15   **Q.   WHAT IS YOUR RECOMMENDATION CONCERNING CUSTOMER**  
16   **CHARGES?**

17   **A.**       Based on public policy and conservation objectives as well as my evaluation of  
18   direct customer costs, I recommend the current 5/8” residential customer charge be  
19   maintained at its current level of \$13.22 per month. This customer charge fee should be

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<sup>5</sup> I have not included the ADIT offset within my rate base calculation.

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1 maintained regardless of the change in revenue requirement authorized by the  
2 Commission.

3 **Q. GIVEN YOUR RECOMMENDATION OF NO CHANGE TO CUSTOMER**  
4 **CHARGES, HOW SHOULD AN AUTHORIZED REVENUE INCREASE BE**  
5 **COLLECTED FROM METERED CUSTOMERS?**

6 A. Any authorized increase in rate revenue should be collected from increased usage  
7 charges. In this regard, I recommend that each of the three-inverted block usage rates be  
8 increased by the same percentage in order to maintain the existing relationship across the  
9 usage rates.

10 **Q. HOW DOES THE COMPANY SUPPORT ITS PROPOSED 5/8" METER**  
11 **CUSTOMER CHARGE OF \$14.51 PER MONTH?**

12 A. Company Witness Guastella supports his proposed 5/8 inch equipment customer  
13 charge based on his fully allocated costs of service study in which he classified and  
14 allocated various costs as "Meters/Services" and "Billing and Accounting." However,  
15 these fully allocated classifications include a large amount of corporate overhead costs,  
16 including general plant and Administrative & General expenses.<sup>6</sup> As indicated earlier,  
17 Artesian is in the business of selling water, not simply connecting customers. As such,  
18 corporate overhead costs are appropriately recovered from usage charges.

19  
20  
21

---

<sup>6</sup> The level and specific costs included in Mr. Guastella's customer classifications can be seen in his Schedules 4 through 8.

**DIRECT TESTIMONY OF GLENN A. WATKINS**  
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1 **V. TARIFF RULES AND REGULATIONS**

2

3 **Q. DOES THE COMPANY PROPOSE ANY TARIFF CHANGES RELATING TO**  
4 **ITS RULES AND REGULATIONS?**

5 **A.** Yes. The Company's Rules and Regulations are set forth in its Revised Sheet  
6 Nos. 8 through 20.

7 **Q. DO YOU HAVE ANY DISAGREEMENTS WITH THE COMPANY'S**  
8 **PROPOSED CHANGES TO ITS RULES AND REGULATIONS CONTAINED IN**  
9 **TARIFF SHEET NOS. 8 THROUGH 20?**

10 **A.** Yes. With regard to Tariff Sheet No. 9, the Company proposes two changes with  
11 which I disagree. First, the Company proposes to insert a "ready to serve" charge.  
12 Specifically, the Company proposes to insert the following language:

13 The owner of the property will be responsible for ready to service charges  
14 consisting of the Monthly Customer Charge and Charges for Fire  
15 Protection.  
16

17 This proposed change should be rejected. This issue was addressed in the settlement of  
18 Artesian's last case. The Company agreed in that settlement to implement a Seasonal  
19 Reconnection Charge. If the Company's proposed change were approved, it would  
20 negate the intent of the settlement in the last case and would in fact, hold property owners  
21 responsible for paying Artesian for water service when no water service is provided, or  
22 desired.

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1           My next disagreement is with the Company's proposal to add the following  
2 language relating to the Seasonal Reconnection Charge (which was agreed to by  
3 Settlement in the last case):

4           If the Company does not receive full payment for service for the period of  
5 inactivity at the conclusion of the inactive period, the Company will  
6 restore the account to active status and institute collections procedures,  
7 which may include the curtailment of service at the curb stop and  
8 appropriate legal remedies. The customer will be responsible for any and  
9 all costs incurred to sever service and fees necessary to collect amounts  
10 owed. This provision is only intended to temporarily defer charges  
11 otherwise owed to the Company on a monthly basis for the provision of  
12 water service.  
13

14           This proposed addition is unnecessary. The Company is free to pursue collection  
15 activities and remedies as allowed by law. Delaware's statutes and regulations are  
16 sufficient as they relate to collection activities such that a Tariff provision for water  
17 utility service is not needed nor should it conflict with the State's statutes regarding the  
18 collection of debts.

19           With regard to Tariff Sheet No. 8, the Company proposes to add the following  
20 language:

21           Service deposits are forfeited if the Company finds evidence of the use of  
22 a meter bar.  
23

24           This proposed addition is simply unnecessary. Tariff Sheet Nos. 15 through 18 address  
25 the terms and conditions relating to discontinuance of service. Specifically, Tariff Sheet  
26 No. 15, paragraph 19(b) allows for the discontinuance of service without notice in the  
27 event of "tampering with the meter or equipment owned or furnished by the Company."

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**ARTESIAN WATER COMPANY, INC.**

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1 Q. DOES THIS COMPLETE YOUR TESTIMONY?

2 A. Yes.

**CONFIDENTIAL**

**APPENDIX**

BACKGROUND & EXPERIENCE PROFILE  
**GLENN A. WATKINS**  
VICE PRESIDENT/SENIOR ECONOMIST  
TECHNICAL ASSOCIATES, INC.

**EDUCATION**

1982 - 1988	M.B.A., Virginia Commonwealth University, Richmond, Virginia
1980 - 1982	B.S., Economics; Virginia Commonwealth University
1976 - 1980	A.A., Economics; Richard Bland College of The College of William and Mary, Petersburg, Virginia

**POSITIONS**

Mar. 1993-Present	Vice President/Senior Economist, Technical Associates, Inc. (Mar. 1993-June 1995 Traded as C. W. Amos of Virginia)
Apr. 1990-Mar. 1993	Principal/Senior Economist, Technical Associates, Inc.
Aug. 1987-Apr. 1990	Staff Economist, Technical Associates, Inc., Richmond, Virginia
Feb. 1987-Aug. 1987	Economist, Old Dominion Electric Cooperative, Richmond, Virginia
May 1984-Jan. 1987	Staff Economist, Technical Associates, Inc.
May 1982-May 1984	Economic Analyst, Technical Associates, Inc.
Sep. 1980-May 1982	Research Assistant, Technical Associates, Inc.

**EXPERIENCE**

**I. Public Utility Regulation**

- A. Costing Studies -- Conducted, and presented as expert testimony, numerous embedded and marginal cost of service studies. Cost studies have been conducted for electric, gas, telecommunications, water, and wastewater utilities. Analyses and issues have included the evaluation and development of alternative cost allocation methods with particular emphasis on ratemaking implications of distribution plant classification and capacity cost allocation methodologies. Distribution plant classifications have been conducted using the minimum system and zero-intercept methods. Capacity cost allocations have been evaluated using virtually every recognized method of allocating demand related costs (e.g., single and multiple coincident peaks, non-coincident peaks, probability of loss of load, average and excess, and peak and average).

Embedded and marginal cost studies have been analyzed with respect to the seasonal and diurnal distribution of system energy and demand costs, as well as cost effective approaches to incorporating energy and demand losses for rate design purposes. Economic dispatch models have been evaluated to determine long range capacity requirements as well as system marginal energy costs for ratemaking purposes.

- B. Rate Design Studies -- Analyzed, designed and provided expert testimony relating to rate structures for all retail rate classes, employing embedded and marginal cost studies. These rate structures have included flat rates, declining block rates, inverted block rates, hours use of demand blocking, lighting rates, and interruptible rates. Economic development and special industrial rates have been developed in recognition of the competitive environment for specific customers. Assessed alternative time differentiated rates with diurnal and seasonal pricing structures. Applied Ramsey (Inverse Elasticity) Pricing to marginal costs in order to adjust for embedded revenue requirement constraints.

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- C. Forecasting and System Profile Studies -- Development of long range energy (Kwh or Mcf) and demand forecasts for rural electric cooperatives and investor owned utilities. Analysis of electric plant operating characteristics for the determination of the most efficient dispatch of generating units on a system-wide basis. Factors analyzed include system load requirements, unit generating capacities, planned and unplanned outages, marginal energy costs, long term purchased capacity and energy costs, and short term power interchange agreements.
- D. Cost of Capital Studies -- Analyzed and provided expert testimony on the costs of capital and proper capital structures for ratemaking purposes, for electric, gas, telephone, water, and wastewater utilities. Costs of capital have been applied to both actual and hypothetical capital structures. Cost of equity studies have employed comparable earnings, DCF, and CAPM analyses. Econometric analyses of adjustments required to electric utilities cost of equity due to the reduced risks of completing and placing new nuclear generating units into service.
- E. Accounting Studies -- Performed and provided expert testimony for numerous accounting studies relating to revenue requirements and cost of service. Assignments have included original cost studies, cost of reproduction new studies, depreciation studies, lead-lag studies, Weather normalization studies, merger and acquisition issues and other rate base and operating income adjustments.

II. Transportation Regulation

- A. Oil and Products Pipelines -- Conducted cost of service studies utilizing embedded costs, I.C.C. Valuation, and trended original cost. Development of computer models for cost of service studies utilizing the "Williams" (FERC 154-B) methodology. Performed alternative tariff designs, and dismantlement and restoration studies.
- B. Railroads -- Analyses of costing studies using both embedded and marginal cost methodologies. Analyses of market dominance and cross-subsidization, including the implementation of differential pricing and inverse elasticity for various railroad commodities. Analyses of capital and operation costs required to operate "stand alone" railroads. Conducted cost of capital and revenue adequacy studies of railroads.

III. Insurance Studies

Conducted and presented expert testimony relating to market structure, performance, and profitability by line and sub-line of business within specific geographic areas, e.g. by state. These studies have included the determination of rates of return on Statutory Surplus and GAAP Equity by line - by state using the NAIC methodology, and comparison of individual insurance company performance vis a vis industry Country-Wide performance.

Conducted and presented expert testimony relating to rate regulation of workers compensation, automobile, and professional malpractice insurance. These studies have included the determination of a proper profit and contingency factor utilizing an internal rate of return methodology, the development of a fair investment income rate, capital structure, cost of capital.

Other insurance studies have included testimony before the Virginia Legislature regarding proper regulatory structure of Credit Life and P&C insurance; the effects on competition and prices resulting from proposed insurance company mergers, maximum and minimum expense multiplier limits, determination of specific class code rate increase limits (swing limits); and investigation of the reasonableness of NCCI's administrative assigned risk plan and pool expenses.



**ARTESIAN WATER COMPANY, INC.**  
**DPA Adjusted Rate of Return Statement**  
**Docket No. 14-132**

Line No.	Description	Test Year Per Books 1/	Artesian Adjustments 1/	Artesian As Adjusted	DPA Adjustments 2/	Dpa Adjusted Test Period	DPA Required Increase @ ROR 7.31%	DPA Revenue Requirement
<b>Operating Income &amp; Rate of Return</b>								
<b>Operating Revenues</b>								
	Water Sales	\$60,849,520	\$1,902,796	\$62,752,316	\$2,550,489	\$65,302,805	\$289,200	\$65,566,005
	Finance Charges	\$55,324	\$73,750	\$129,074	\$5,356	\$134,430	\$553 3/	\$134,983
	Misc. Revenue	\$1,378,495	\$37,604	\$1,416,100	0	\$1,416,100		\$1,416,100
	<b>Total Operating Revenue</b>	<b>\$62,283,340</b>	<b>\$2,014,150</b>	<b>\$64,297,490</b>	<b>\$2,555,845</b>	<b>\$66,853,335</b>	<b>\$263,753</b>	<b>\$67,117,088</b>
<b>Operating expenses</b>								
	Operation and Maintenance Expenses	\$31,881,977	\$2,270,532	\$34,152,509	-\$1,818,256	\$32,334,253	\$1,635 4/	\$32,335,889
	Depreciation and Amortization Expenses	\$7,726,815	\$1,174,634	\$8,901,449	-\$172,230	\$8,729,219		\$8,729,219
	Taxes Other Than Income							
	Property	\$2,698,138	\$145,906	\$2,844,044	-\$209,419	\$2,634,625		\$2,634,625
	Franchise	\$53,808	\$0	\$53,808	\$0	\$53,808		\$53,808
	Payroll	\$1,031,179	\$117,695	\$1,148,874	-\$46,908	\$1,101,966		\$1,101,966
	<b>Total Operating Expenses</b>	<b>\$43,381,917</b>	<b>\$3,708,767</b>	<b>\$47,100,684</b>	<b>-\$2,246,812</b>	<b>\$44,853,872</b>	<b>\$1,635</b>	<b>\$44,855,507</b>
	<b>Operating Income Before Income Taxes</b>	<b>\$18,891,423</b>	<b>-\$1,694,617</b>	<b>\$17,196,806</b>	<b>\$4,802,658</b>	<b>\$21,999,464</b>	<b>\$262,117</b>	<b>\$22,261,581</b>
	State Income Taxes (Curr + Deferred)	\$1,137,827	-\$146,194	\$991,633	\$497,715	\$1,429,348	\$22,804	\$1,452,152
	Federal Income Taxes (Curr + Deferred)	\$4,069,786	-\$531,594	\$3,538,192	\$1,607,722	\$5,145,914	\$83,760	\$5,229,673
	Amortization of ITC	-\$21,554	\$20,110	-\$1,444	\$0	-\$1,444		-\$1,444
	<b>Total Income Taxes</b>	<b>\$5,186,059</b>	<b>-\$657,678</b>	<b>\$4,528,381</b>	<b>\$2,045,437</b>	<b>\$6,573,818</b>	<b>\$106,564</b>	<b>\$6,680,382</b>
	<b>Net Operating Income</b>	<b>\$13,705,364</b>	<b>-\$1,036,939</b>	<b>\$12,668,425</b>	<b>\$2,757,221</b>	<b>\$15,425,648</b>	<b>\$195,554</b>	<b>\$15,581,200</b>
	<b>Rate Base</b>	<b>\$207,946,505</b>		<b>\$221,242,816</b>		<b>\$213,149,251</b>		<b>\$213,149,251</b>
	<b>Rate of Return</b>	<b>6.59%</b>		<b>5.73%</b>		<b>7.24%</b>		<b>7.31%</b>

**Rate Base:**

Gross Plant	\$407,322,967	\$24,606,862	\$431,929,829	-\$7,893,109	\$424,036,720
Less: Depr. Reserve	-\$87,316,179	-\$9,255,104	-\$96,571,283	\$172,230	-\$96,399,053
<b>Net Plant in Service</b>	<b>\$320,006,788</b>	<b>\$15,351,758</b>	<b>\$335,358,546</b>	<b>-\$7,820,880</b>	<b>\$327,537,666</b>
Advances for Construction (net)	-\$10,399,528	\$1,010,010	-\$9,389,518		-\$9,389,518
Contributions in Aid of Construction (net)	-\$64,000,058	-\$2,706,896	-\$66,706,954		-\$66,706,954
Accumulated Deferred Income Taxes	-\$42,500,138	-\$601,285	-\$43,101,423	\$184,315	-\$42,917,108
Deferred ITC	-\$600,346	\$14,646	-\$585,700		-\$585,700
Materials & Supplies	\$1,475,244	-\$12,691	\$1,462,553		\$1,462,553
Working Capital	\$2,283,123	\$252,000	\$2,535,123	-\$457,000	\$2,078,123
Taxes Paid on CIAC	\$1,681,420	-\$11,231	\$1,670,189		\$1,670,189
<b>Total Rate Base</b>	<b>\$207,946,505</b>	<b>\$13,296,311</b>	<b>\$221,242,816</b>	<b>-\$8,093,565</b>	<b>\$213,149,251</b>

1/ Per Schedules DLV-2-S and DLV-3-2-S.

2/ Per Schedule GAW-3.

3/ Reflects finance charge (0.21%).

4/ Reflects uncollectibles (0.32%) and PSC Assessment (0.3%).

ARTESIAN WATER COMPANY  
Summary of DPA Adjustments  
Docket No. 14-132

Item	DPA Schedule Ref	Operating Income				Taxes Other than Income	Depreciation Expense	State Income Tax	Federal Income Tax
		Revenue	O&M Expense	Depreciation Expense	State Income Tax				
Sales- Usage Normalization	GAW-7	\$1,071,911					\$93,256	\$342,529	
Sales- Customer Growth	GAW-7	\$1,478,578					\$128,636	\$472,480	
Finance Charge Revenue	GAW-7	\$5,356							
Depreciation Expense (Additions)	GAW-4			(\$172,230)			\$14,984	\$55,086	
Plant Additions	GAW-4					(\$209,419)	\$18,119	\$66,920	
Salaries & Wages	GAW-8		(\$583,975)				\$50,806	\$186,609	
Payroll Taxes	GAW-8					(\$46,908)	\$4,081	\$14,989	
Pensions	GAW-8		(\$38,881)				\$3,383	\$12,424	
Workers Comp	GAW-8		\$1,632				(\$142)	(\$521)	
Purchased Power	GAW-9		(\$26,318)				\$2,290	\$8,410	
Chester Legal Costs	GAW-10		(\$235,264)				\$70,468	\$75,179	
Purchased Water	GAW-11		(\$347,348)				\$30,219	\$110,995	
Langollen Well	GAW-12		(\$54,445)				\$4,737	\$17,398	
Rate Case Expense	GAW-13		(\$356,636)				\$31,027	\$113,969	
Stock Options	GAW-14		(\$123,463)				\$10,741	\$39,453	
Social and Service Club Dues	GAW-15		(\$7,733)				\$673	\$2,471	
Donations	GAW-16		(\$45,825)				\$3,987	\$14,643	
Interest Synchronization	GAW-17						\$20,350	\$74,744	
<b>Total Operating Income Adjustments</b>		\$2,555,845	(\$1,818,256)	(\$172,230)	(\$256,327)	\$437,715	\$1,607,722		

Item	Company Schedule Ref	Rate Base					Total Rate Base
		Gross Plant In Service	Depreciation Reserve	CWIP	Accumulated Deferred Income Taxes	Materials & Supplies	
Forecasted Additions to Plant in Service	GAW-4	(\$7,993,109)	\$172,230				(\$7,820,880)
Accumulated Deferred Income Taxes	GAW-5				\$184,315		\$184,315
Cash Working Capital	GAW-6					(\$457,000)	(\$457,000)
<b>Total Rate Base Adjustments</b>		(\$7,993,109)	\$172,230	\$0	\$184,315	\$0	(\$8,243,565)

ARTESIAN WATER COMPANY, INC.  
DPA PLANT ADJUSTMENTS  
BY FERC ACCOUNT

Account	(1) No Expenditures As of End of 2nd Q. 1/	(2) Less Than 25% Complete As of End of 2nd Q. 1/	(3) Actual Expenditures In Excess Of Supplemental Estimate 1/	(4) DPA Adjustment (1)+(2)+(3)	(5) Depreciation Rate	(6) DPA Depreciation Adjustment
311			\$41,530	\$41,530	1.620%	\$673
314			\$61,267	\$61,267	2.220%	\$1,360
320			\$5,239	\$5,239	0.000%	\$0
321	(\$170,000)	(\$75,000)	\$29,622	(\$215,378)	1.620%	(\$3,489)
323	(\$338,680)	(\$135,125)	\$62,985	(\$410,820)	2.860%	(\$11,749)
325	(\$170,000)	(\$10,693)	\$32,155	(\$148,538)	2.860%	(\$4,248)
331	(\$844,000)	(\$1,026,920)	\$865,777	(\$1,005,143)	2.000%	(\$20,103)
332	(\$2,943)	(\$200,000)	\$58,222	(\$144,721)	2.220%	(\$3,213)
343	(\$2,480,009)	(\$2,829,291)	\$316,465	(\$4,992,835)	1.240%	(\$61,911)
345	(\$256,500)		\$102,312	(\$154,188)	2.570%	(\$3,963)
346		(\$160,000)	\$8,909	(\$151,091)	3.840%	(\$5,802)
348	(\$20,000)		\$7,910	(\$12,090)	1.670%	(\$202)
390	(\$66,200)	(\$65,000)		(\$131,200)	4.220%	(\$5,537)
391-1	(\$8,000)	(\$12,000)		(\$20,000)	4.790%	(\$958)
391-2		(\$189,000)	\$113,599	(\$75,401)	1.200%	(\$905)
391-4	(\$50,000)	(\$50,000)		(\$100,000)	19.190%	(\$19,190)
391-7	(\$345,000)		\$175,723	(\$169,277)	6.670%	(\$11,291)
391-8	(\$20,000)			(\$20,000)	6.670%	(\$1,334)
392	(\$50,000)			(\$50,000)	8.640%	(\$4,320)
394	(\$32,500)	(\$15,000)		(\$47,500)	3.200%	(\$1,520)
395	(\$7,500)			(\$7,500)	10.660%	(\$800)
397	(\$120,000)	(\$6,000)	\$4,337	(\$121,663)	6.400%	(\$7,786)
398	(\$113,800)	(\$10,000)		(\$123,800)	4.800%	(\$5,942)
<b>Total</b>	<b>(\$5,095,133)</b>	<b>(\$4,784,028)</b>	<b>\$1,886,051</b>	<b>(\$7,993,109)</b>		<b>(\$172,230)</b>

1/ Per Schedules GAW-4.1, 4.2, and 4.3.

DPA Plant Adjustment	(\$7,993,109)
Average Property Tax Rate [per PSC-RR-2-1072]	2.620%
DPA Property Tax Adjustment	(\$209,419)

ARTESIAN WATER COMPANY, INC.  
Projects Not Yet Started (Zero Expenditures to Date)

Project	Activity	Project Description	Activity Description	Asset Acct #	Initial Filing End of Test Period Estimates	Adjustments	Supplemental End of Test Period Estimates	Start/End Date	2nd Qtr Actuals	Assets In Service
<b>Project Not Yet Started (Zero Expenditures to Date)</b>										
3001241	1	3001241.1 Backstop for Station Driveways	Budget Summary	3210000000	\$50,000	-	\$50,000	1/1/2014 9/30/2014	-	-
3001245	1	3001245.1 Rook at Stations	Budget Summary	3210000000	\$75,000	-	\$75,000	7/1/2014 9/30/2014	-	-
3001246	1	3001246.1 Station and Tank Fence Replace	Budget Summary	3210000000	\$45,000	-	\$45,000	7/1/2014 9/30/2014	-	-
		<b>Acct. Total</b>		<b>321</b>			<b>\$170,000</b>			
3001331	34	3001331.34 1-95 Crossover Booster Station	Electrical Equip and Generator	3230000000	\$238,680	-	\$238,680	1/25/2013 8/29/2014	-	-
3001552	1	3001552.1 1 (air)gen generator	Budget	3230000000	\$100,000	-	\$100,000	1/1/2014 9/30/2014	-	-
		<b>Acct. Total</b>		<b>323</b>			<b>\$338,680</b>			
3001046	1	3001046.1 VFD Replacements	Budget	3250000000	\$50,000	-	\$50,000	1/1/2014 9/30/2014	-	-
3001560	1	3001560.1 1700 gpm Portable Pump	Budget	3250000000	\$130,000	-	\$130,000	1/1/2014 9/30/2014	-	-
		<b>Acct. Total</b>		<b>325</b>			<b>\$170,000</b>			
3000981	1	3000981.1 AWC Internal Engineering 2012	General Account	3310000000	\$682,000	-	\$682,000	1/1/2011 9/30/2014	-	-
3001182	1	3001182.1 BAYVILLE AERATOR WALKWAY	BUDGET SUMMARY	3310000000	\$81,000	-	\$81,000	3/15/2013 6/30/2014	-	-
3001563	1	3001563.1 Old County Road - Doors	Budget	3310000000	\$23,000	-	\$23,000	7/1/2014 9/30/2014	-	-
3001564	1	3001564.1 Old County Road - Driveway to	Budget	3310000000	\$18,000	-	\$18,000	7/1/2014 9/30/2014	-	-
3001565	1	3001565.1 Old County Road - Sidewalks	Budget	3310000000	\$7,000	-	\$7,000	7/1/2014 9/30/2014	-	-
3001566	1	3001566.1 Old County Road - Well Roof an	Budget	3310000000	\$53,000	-	\$53,000	7/1/2014 9/30/2014	-	-
		<b>Acct. Total</b>		<b>331</b>			<b>\$844,000</b>			
3001410	17	3001410.17 Legram Village Ph. 3 Treatment	Treatment Equipment	3320000000	\$2,943	-	\$2,943	6/14/2013 6/30/2014	-	-
		<b>Acct. Total</b>		<b>332</b>			<b>\$2,943</b>			
3001020	1	3001020.1 US301, Level Rd to Summit	BUDGET SUMMARY	3430000000	\$375,000	-	\$375,000	1/1/2014 9/30/2014	-	-
3001182	1	3001182.1 SR7, Skyline Drive	BUDGET SUMMARY	3430000000	\$75,000	-	\$75,000	1/1/2014 9/30/2014	-	-
3001183	1	3001183.1 081-665 over Bayler Blvd	BUDGET SUMMARY	3430000000	\$75,000	-	\$75,000	1/1/2014 9/30/2014	-	-
3001184	1	3001184.1 Valley Road Ped Improvements	BUDGET SUMMARY	3430000000	\$5,000	-	\$5,000	1/1/2014 9/30/2014	-	-
3001201	1	3001201.1 Vnve Adjust BUDOT 2013	Budget Summary	3430000000	\$4,750	-	\$4,750	1/1/2014 9/30/2014	-	-
3001214	1	3001214.1 Bayberry-AWC Funded Materials	Budget	3430000000	\$50,000	-	\$50,000	1/1/2014 9/30/2014	-	-
3001217	28	3001217.28 1-95 Crossover Main Extension	Permits and easements	3430000000	\$11,259	-	\$11,259	3/14/2014 9/30/2014	-	-
3001221	1	3001221.1 Vlnna Village 2013	Budget	3430000000	\$400,000	-	\$400,000	8/12/2013 3/31/2014	-	-
3001503	1	3001503.1 Bowlerama Renewal	Budget	3430000000	\$434,000	-	\$434,000	8/12/2014 9/12/2014	-	-
3001504	1	3001504.1 Brookmeade   2014	Budget	3430000000	\$495,000	-	\$495,000	7/16/2014 9/12/2014	-	-
3001509	1	3001509.1 Newport Gap Pile 2014	Budget	3430000000	\$396,000	-	\$396,000	7/14/2014 8/29/2014	-	-
3001512	1	3001512.1 Trinch Manor Bridge 2014	Budget	3430000000	\$15,000	-	\$15,000	7/15/2014 9/30/2014	-	-
3001513	1	3001513.1 Sherfield Manor Bridge Xing	Budget	3430000000	\$200,000	-	\$200,000	7/15/2014 9/30/2014	-	-
3001521	1	3001521.1 TED Value Replacement	Budget	3430000000	\$40,000	-	\$40,000	1/1/2014 9/30/2014	-	-
		<b>Acct. Total</b>		<b>343</b>			<b>\$2,409,009</b>			
3001215	1	3001215.1 Small Services 2013	Budget	3450000000	\$225,000	-	\$225,000	1/1/2014 9/30/2014	-	\$47,160
3001224	1	3001224.1 Directionally Drilled Services	Budget	3450000000	\$10,000	-	\$10,000	1/1/2014 9/30/2014	-	-
3001381	3	3001381.3 Hampton Suites - R* Service	Services	3450000000	\$1,500	-	\$1,500	10/17/2013 6/30/2014	-	-
3001520	1	3001520.1 TED Service Replacement	Budget	3450000000	\$20,000	-	\$20,000	1/1/2014 9/30/2014	-	-
		<b>Acct. Total</b>		<b>345</b>			<b>\$256,500</b>			
3001519	1	3001519.1 TED Hydrant Replacements	Budget	3600000000	\$20,000	-	\$20,000	1/1/2014 11/30/2014	-	-
		<b>Acct. Total</b>		<b>348</b>			<b>\$20,000</b>			
3000754	36	3000754.36 new entry sign @ 664	office and warehouse buildings	3900000000	\$13,200	-	\$13,200	1/1/2014 9/30/2014	-	-
3001090	1	3001090.1 Sussex Office - Security Upgrn	Budget Summary	3900000000	\$20,000	-	\$20,000	7/1/2014 9/1/2014	-	-
3001309	1	3001309.1 Renovations - Design/Phase	Budget	3900000000	\$1,000	-	\$1,000	1/1/2014 9/30/2014	-	-
3001562	1	3001562.1 Backstop for Lower yard at AWC	Budget	3900000000	\$25,000	-	\$25,000	7/1/2014 9/30/2014	-	-
		<b>Acct. Total</b>		<b>390</b>			<b>\$64,200</b>			
3001308	1	3001308.1 Office Equipment	Budget	3910010000	\$8,000	-	\$8,000	1/1/2014 9/30/2014	-	-
		<b>Acct. Total</b>		<b>391.1</b>			<b>\$8,000</b>			
3001005	1	3001005.1 Asset Management System - 2012	Budget Summary	3910040000	\$20,000	-	\$20,000	1/1/2014 9/30/2014	-	-
3001570	1	3001570.1 DataStream Upgrade	Budget	3910040000	\$90,000	-	\$90,000	1/1/2014 9/30/2014	-	-

ARTESIAN WATER COMPANY, INC.  
Projects Not Year Started (Zero Expenditures to Date)

Project	Activity	Project Description	Activity Description	Asset Acct #	Initial Piking End Test Period Estimates	Adjustments	Supplemental End of Test Period Estimates	Start/End Date	2nd Qtr Actuals	Assets In Service
<b>Project Not Year Started (Zero Expenditures to Date)</b>										
3001225	1	3001225-1	CIS Soil w/Implex Contingency	3910070000	\$245,000		\$245,000	1/1/2014 9/30/2014		
3001571	1	3001571-1	Misc IT capitalize payroll	3910070000	\$100,000		\$100,000	1/1/2014 9/30/2014		
		<b>Acct. Total</b>		<b>3910070000</b>	<b>\$345,000</b>		<b>\$345,000</b>			
3001586	1	3001586-1	Geographic Information System	3910080000	\$20,000		\$20,000	1/1/2014 9/30/2014		
		<b>Acct. Total</b>		<b>3910080000</b>	<b>\$20,000</b>		<b>\$20,000</b>			
3001589	1	3001589-1	Bucket Truck	3920000000	\$200,000	-\$150,000	\$50,000	7/1/2014 9/30/2014		
		<b>Acct. Total</b>		<b>3920000000</b>	<b>\$50,000</b>		<b>\$50,000</b>			
3001286	1	3001286-1	Misc TED Tools	3940000000	\$20,000		\$20,000	1/1/2014 9/30/2014		
3001518	1	3001518-1	Water Quality Tools	3940000000	\$1,500		\$1,500	4/1/2014 6/1/2014		
3001525	1	3001525-1	MISC SHOP TOOLS	3940000000	\$4,000		\$4,000	1/1/2014 9/30/2014		
3001526	1	3001526-1	Misc Meter Shop Equipment	3940000000	\$7,000		\$7,000	1/1/2014 9/30/2014		
		<b>Acct. Total</b>		<b>3940000000</b>	<b>\$32,500</b>		<b>\$32,500</b>			
3001312	1	3001312-1	Chemical Analyzer	3950000000	\$7,500		\$7,500	4/1/2014 8/7/2014		
		<b>Acct. Total</b>		<b>3950000000</b>	<b>\$7,500</b>		<b>\$7,500</b>			
3001235	1	3001235-1	Middletown Internat Automation	3970000000	\$50,000		\$50,000	7/1/2014 9/30/2014		
3001555	1	3001555-1	Generators at radio repairers	3970000000	\$30,000		\$30,000	1/1/2014 9/30/2014		
3001556	1	3001556-1	Comen system improvements	3970000000	\$25,000		\$25,000	1/1/2014 9/30/2014		
3001581	1	3001581-1	Chesapeake City Intercom Auto	3970000000	\$15,000		\$15,000	7/1/2014 9/30/2014		
		<b>Acct. Total</b>		<b>3970000000</b>	<b>\$120,000</b>		<b>\$120,000</b>			
3001088	1	3001088-1	Portable Remote Surveillance	3980000000	\$10,000		\$10,000	7/1/2014 8/1/2014		
3001213	1	3001213-1	Planning Dept Survey Equipment	3980000000	\$5,000		\$5,000	1/1/2014 9/30/2014		
3001257	1	3001257-1	Misc Safety Equipment	3980000000	\$18,800		\$18,800	1/1/2014 9/30/2014		
3001264	1	3001264-1	2013 Well Monitoring Equipment	3980000000	\$10,000		\$10,000	1/1/2014 9/30/2014		
3001311	1	3001311-1	Misc Security Equipment	3980000000	\$5,000		\$5,000	6/1/2014 11/1/2014		
3001567	1	3001567-1	New Employee Photo Identific	3980000000	\$25,000		\$25,000	3/1/2014 4/1/2014		
3001568	1	3001568-1	New security specialist postai	3980000000	\$10,000		\$10,000	6/1/2014 6/1/2014		
3001569	1	3001569-1	Ready Key System in 664 Buildi	3980000000	\$30,000		\$30,000	7/1/2014 8/1/2014		
		<b>Acct. Total</b>		<b>3980000000</b>	<b>\$113,800</b>		<b>\$113,800</b>			
<b>TOTAL ALL ACCOUNTS</b>										<b>\$5,075,133</b>

Source: Artesian response to PSC-RR-5a.

ARTESIAN WATER COMPANY, INC.  
Expenditures in Excess of Estimate

Project	Activity	Project Description	Activity Description	Asset Acct #	Initial Filtration Estimates	Supplemental Estimates	Start/End Date	2nd Qtr Actuals	Assets In Service
3000649	34	3000649 34	Hockstien Well Houses	3110000000	\$17,334	\$174,934	9/7/2013	\$190,901	
3000649	74	3000649 74	Hockstien Well Houses	3110000000	\$10,960	\$10,960	9/7/2013	\$11,360	
3000649	134	3000649 134	Hockstien Well Houses	3110000000	\$24,000	\$14,000	9/7/2013	\$40,903	
3000649	232	3000649 232	Hockstien Well Houses	3110000000	\$2,400	\$2,400	9/7/2013	\$1,560	
		Acct. Total		311	\$20,094	\$204,395		\$250,374	
3001177	27	3001177 27	Jefferson Farms Well 2 Replace	3140000000	\$132,533	\$314,533	9/18/2012	\$243,949	\$145,206
3001180	74	3001180 74	Chemical Well Investigation	3140000000	\$4,594	\$4,994	9/18/2013	\$10,724	
3001469	24	3001469 24	Hyatt Well DRIEC Allocation	3140000000	\$2,748	\$2,748	9/18/2013	\$1,457	
3001469	74	3001469 74	Hyatt Well DRIEC Allocation	3140000000	\$1,194	\$1,194	9/18/2013	\$1,784	
3001501	17	3001501 17	Jefferson Farms AT3	3140000000	\$1,918	\$1,918	11/13/2013	\$1,219	
3001501	74	3001501 74	Jefferson Farms AT3	3140000000	\$1,918	\$1,918	11/13/2013	\$1,493	
		Acct. Total		314	\$30,277	\$349,287		\$369,344	
3001331	49	3001331 49	1-95 Crossover Booster Station	3210000000	\$18,680	\$18,680	1/23/2013	\$3,939	
		Acct. Total		320	\$18,680	\$18,680		\$3,939	
3001331	74	3001331 74	1-95 Crossover Booster Station	3210000000	\$30,673	\$30,673	1/23/2013	\$31,371	
3001331	75	3001331 75	1-95 Crossover Booster Station	3210000000	\$3,828	\$9,828	1/23/2013	\$11,551	
		Acct. Total		321	\$34,501	\$40,501		\$42,922	
3000987	34	3000987 34	Beaver Creek WTP Generator	2200000000	\$0	\$0	1/17/2013	\$2,983	
		Acct. Total		313	\$0	\$0		\$2,983	
3001410	14	3001410 14	Ingram Village Ph. 1 Treatment	3150000000	\$0	\$0	6/24/2013	\$1,218	\$11,315
3001462	54	3001462 54	Beaver Creek Booster Pump Temp	3210000000	\$0	\$0	10/15/2013	\$10,877	
		Acct. Total		323	\$0	\$0		\$12,095	
3001166	74	3001166 74	Carlin Hill Station Upgrades	3110000000	\$34,071	\$34,071	9/7/2012	\$10,704	
3001166	124	3001166 124	Carlin Hill Station Upgrades	3110000000	\$4,754	\$4,754	9/7/2012	\$4,652	
3001166	130	3001166 130	Carlin Hill Station Upgrades	3110000000	\$19,705	\$19,705	9/7/2012	\$9,023	
3001166	137	3001166 137	Carlin Hill Station Upgrades	3110000000	\$200	\$200	9/7/2012	\$4,876	
3001281	117	3001281 117	Ungapoken L.A. Dioxane	3110000000	\$16,677	\$16,677	1/17/2013	\$37,316	
3001281	217	3001281 217	Ungapoken L.A. Dioxane	3110000000	\$14,111	\$14,111	1/17/2013	\$13,547	
3001134	34	3001134 34	Fairchild Grounding Grid	3110000000	\$42,789	\$42,789	2/1/2013	\$24,844	
3001134	74	3001134 74	Fairchild Grounding Grid	3110000000	\$1,602	\$1,602	2/1/2013	\$44,307	
3001335	74	3001335 74	Glendale Grounding Grid	3110000000	\$1,602	\$1,602	2/1/2013	\$2,316	
3001352	74	3001352 74	BAVYILLE MONITOR WELLYWAY	3110000000	\$4,681	\$4,681	2/1/2013	\$3,709	
3001410	15	3001410 15	Ingram Village Ph. 1 Treatment	3110000000	\$1,271	\$1,271	2/25/2013	\$7,209	
3001410	28	3001410 28	Ingram Village Ph. 1 Treatment	3110000000	\$1,128	\$1,128	2/25/2013	\$1,709	
3001410	74	3001410 74	Ingram Village Ph. 1 Treatment	3110000000	\$104,146	\$104,146	2/25/2013	\$108,715	\$109,715
3001421	74	3001421 74	Tunedo Park Ph. 1 Treatment	3110000000	\$19,771	\$19,771	6/24/2013	\$4,628	\$14,823
		Acct. Total		331	\$566	\$566		\$22,270	\$32,270
					\$772,104	\$772,104		\$7,259	\$1,002,941
3001342	1	3001342 1	Ungapoken L.A. Dioxane	3210000000	\$34,400	\$34,400	12/1/2012	\$42,650	
3001342	74	3001342 74	Ungapoken L.A. Dioxane	3210000000	\$28,518	\$28,518	12/1/2012	\$81,990	
		Acct. Total		332	\$62,918	\$62,918		\$124,640	
3001020	75	3001020 75	US301, Level 16 to Summit	3430000000	\$1,513	\$1,513	1/17/2014	\$5,187	
3001027	75	3001027 75	Bayberry South to Commodore 2	3430000000	\$9,314	\$9,314	1/17/2014	\$18,265	
3001182	75	3001182 75	517, Skyline Drive	3430000000	\$177	\$177	1/17/2014	\$1,385	
3001189	75	3001189 75	611-655 over Baylor Blvd	3430000000	\$246	\$246	1/17/2014	\$1,739	
3001189	76	3001189 76	Water Run Off-104	3430000000	\$1,281	\$1,281	1/17/2013	\$1,465	\$1,445
3001217	2	3001217 2	4-95 Crossover Main Extension	3430000000	\$915	\$915	3/17/2013	\$1,069	\$1,065
3001221	2	3001221 2	Village Village 2013	3430000000	\$411,009	\$411,009	3/17/2013	\$33,053	\$33,053
3001221	75	3001221 75	Village Village 2013	3430000000	\$4,791	\$4,791	3/17/2013	\$50,992	
3001346	75	3001346 75	Village Village 2013	3430000000	\$5,897	\$5,897	3/17/2013	\$4,823	\$4,823
3001341	75	3001341 75	Shenandoah Creek, Phase C.1	3430000000	\$5,441	\$5,441	3/17/2013	\$7,256	\$7,256
3001341	75	3001341 75	Shenandoah Creek, Phase C.1	3430000000	\$1,797	\$1,797	12/1/2013	\$1,789	\$1,789
3001341	75	3001341 75	Wieder Comment, Phase 1A & 1B	3430000000	\$1,378	\$1,378	10/17/2013	\$1,465	\$1,465
3001342	2	3001342 2	Whisper South, Phase 1	3430000000	\$78,639	\$78,639	10/17/2013	\$1,675	\$1,675
							\$100,141		

ARTESIAN WATER COMPANY, INC.  
Expenditures in Dollars Of Estimates

Project	Activity	Project Description	Activity Description	Asset Class	End Term Period Estimate	Adjustments	Supplemental End of Term Period Estimate	Start/End Date	2nd Qtr Amount	Amount in Services
<b>Amended in Dollars of Estimates</b>										
3001342	75	3001342 75	Whisper South, Phase 1	3430000000	\$1,817		\$1,817	10/31/2013 6/30/2014	\$2,808	
3001342	76	3001342 76	Whisper South, Phase 1	3430000000				10/31/2013 6/30/2014	\$567	
3001343	2	3001343 2	Preserve at Robinson Farm-Ph1A	2430000000	50		50	10/31/2013 6/30/2014	\$172	
3001382	75	3001381 75	Bryberry South, Phase 7	3430000000	\$1,694		\$1,694	10/31/2013 6/30/2014	\$3,842	
3001382	76	3001381 76	Bryberry South, Phase 7	3430000000	\$1,119		\$1,119	10/31/2013 6/30/2014	\$2,158	
3001401	75	3001401 75	Bryberry North, Phase 3A	3430000000	\$1,463		\$1,463	10/31/2013 6/30/2014	\$1,502	
3001401	76	3001401 76	Bryberry North, Phase 3A	3430000000	\$444		\$444	10/31/2013 6/30/2014	\$456	
3001504	75	3001504 75	Bryberry North, Phase 8A	3430000000	\$342		\$342	10/31/2013 6/30/2014	\$533	
3001504	76	3001504 76	Bryberry North, Phase 8A	3430000000	\$342		\$342	10/31/2013 6/30/2014	\$641	
3001508	2	3001508 2	Crab View at Crisland Phase J	3430000000	\$2,093		\$2,093	10/31/2013 6/30/2014	\$2,149	
3001508	75	3001508 75	Crab View at Crisland Phase J	3430000000	\$430		\$430	10/31/2013 6/30/2014	\$408	
3001508	76	3001508 76	Crab View at Crisland Phase J	3430000000				10/31/2013 6/30/2014	\$33,295	
3001548	2	3001548 2	Bryberry South - Office Main	3430000000	\$641		\$641	1/1/2014 6/30/2014	\$654	\$3,649
3001548	75	3001548 75	Bryberry South - Office Main	3430000000	\$143		\$143	1/1/2014 6/30/2014	\$781	
3001548	76	3001548 76	Bryberry South - Office Main	3430000000	\$1,747		\$1,747	10/31/2013 6/30/2014	\$2,378	
3001509	75	3001509 75	Bowfenna Renewal	3430000000	\$1,393		\$1,393	7/15/2014 8/29/2014	\$7,401	
3001504	75	3001504 75	Bowfenna Renewal	3430000000	\$1,657		\$1,657	7/15/2014 8/29/2014	\$5,597	
3001505	75	3001505 75	Collins Park 2014	3430000000	\$771		\$771	6/17/2014 6/29/2014	\$6,808	
3001509	75	3001509 75	Newport Gap Pk 2014	3430000000	\$1,330		\$1,330	7/17/2014 8/29/2014	\$5,526	
3001510	75	3001510 75	Richardson Park 2014	3430000000	\$6,375		\$6,375	6/19/2014 6/29/2014	\$23,225	
3001539	1	3001539 1	Rt 277 to Chickasaw Mill	3430000000	\$1,350,000	-\$100,000	\$1,250,000	3/17/2014 9/30/2014	\$1,262,596	
3001525	1	3001525 1	Churchman Road Jumper	3430000000	\$100,000	\$100,000	\$200,000	6/1/2014 6/30/2014	\$109,337	
		<b>Acct. Total</b>		<b>343</b>			<b>\$1,500,138</b>		<b>\$2,218,665</b>	
3001221	3	3001221 3	Vilna Village 2013	3430000000	\$45,357		\$45,357	6/11/2013 3/31/2014	\$144,678	
3001316	3	3001316 3	Stonewater Creek, Phase 6.1	3430000000	\$12,964		\$12,964	2/17/2013 1/31/2014	\$33,087	\$13,087
3001341	3	3001341 3	Whisper Commons, Phase 1A & 1B	3430000000	\$33,964		\$33,964	10/31/2013 6/30/2014	\$35,709	\$35,709
3001401	3	3001401 3	Bryberry North, Phase 3A	3430000000	\$24,092		\$24,092	6/30/2014	\$24,494	\$24,494
3001604	3	3001604 3	Bryberry North, Phase 8A	3430000000	\$54,078		\$54,078	10/31/2013 6/30/2014	\$35,397	
		<b>Acct. Total</b>		<b>343</b>			<b>\$140,464</b>		<b>\$243,138</b>	
3001231	1	3001231 1	New Midland for New Courts	3430000000	\$76,000		\$76,000	1/1/2014 9/30/2014	\$84,909	\$84,909
		<b>Acct. Total</b>		<b>346</b>			<b>\$76,000</b>		<b>\$84,909</b>	
3001331	4	3001331 4	Vilna Village 2013	3430000000	\$20,259		\$20,259	6/11/2013 3/31/2014	\$26,168	
		<b>Acct. Total</b>		<b>346</b>			<b>\$20,259</b>		<b>\$26,168</b>	
3001008	1	3001008 1	Repl Equip Acctve Auto 2012	3910000000	\$84,000		\$84,000	1/1/2014 9/30/2014	\$87,599	\$87,599
		<b>Acct. Total</b>		<b>391.1</b>			<b>\$84,000</b>		<b>\$87,599</b>	
3001004	21	3001004 21	CS Software w/Implementation	3910070000	\$481,439		\$481,439	1/1/2014 9/30/2014	\$596,313	
3001004	81	3001004 81	CS Software w/Implementation	3910070000	\$4,643		\$4,643	1/1/2014 9/30/2014	\$20,135	
3001004	83	3001004 83	CS Software w/Implementation	3910070000	\$1,378		\$1,378	1/1/2014 9/30/2014	\$48,674	
		<b>Acct. Total</b>		<b>391.7</b>			<b>\$488,460</b>		<b>\$665,122</b>	
3001572	1	3001572 1	Mobile Auction (old 115 orig)	3970000000	\$1,000		\$1,000	1/1/2014 9/30/2014	\$1,945	\$1,945
3001573	1	3001573 1	Perceable Fusion	3970000000	\$5,000		\$5,000	1/1/2014 9/30/2014	\$4,099	\$4,099
3001580	1	3001580 1	Review Automation Controls	3970000000	\$26,000		\$26,000	5/1/2014 6/30/2014	\$20,291	\$4,099
		<b>Acct. Total</b>		<b>397</b>			<b>\$32,000</b>		<b>\$45,337</b>	
<b>TOTAL ALL ACCOUNTS</b>										<b>\$6,874,874</b>
<b>DIFFERENCE</b>										<b>\$1,886,093</b>

Source: Arpaion response to PSC-10-54.

ARTESIAN WATER COMPANY, INC.  
Expenditures Less Than 25% of Estimated Project Costs

Project	Activity	Project Description	Activity Description	Acct Acct #	Estimates	Adjustments	Supplemental End of Year Period Estimate	Start/End Date	Ytd Cr Actual	Assets In Service
3001242	1	3001242.1 - Sec. Main Station Improvement	Budget Summary	3310000000	\$75,000	-	\$75,000	1/1/2014 - 9/30/2014	\$8,585	\$8,585
		Acct. Total		331			\$75,000		\$8,585	\$8,585
3000987	74	3000987.74 Beaver Creek WTP Generator	Internal Engineering	3130000000	\$74,125	-	\$74,125	1/1/2012 - 6/15/2014	\$16,518	\$16,518
3001559	1	3001559.1 Augustine Creek Generator	Budget	3230000000	\$60,000	-	\$60,000	1/1/2014 - 9/30/2014	\$4,150	\$4,150
		Acct. Total		323			\$134,125		\$20,668	\$20,668
3001482	74	3001482.74 Beaver Creek Booster Pump Repl	Engineering Labor	3250000000	\$10,693	-	\$10,693	10/15/2013 - 7/11/2014	\$700	\$700
		Acct. Total		325			\$10,693		\$700	\$700
3001166	1	3001166.1 Castle Hill Station Upgrades	Budget	3310000000	\$750,000	-	\$750,000	9/7/2012 - 7/24/2014	\$44,514	\$44,514
3001263	1	3001263.1 2013 Service Improvements	Misc station improvements	3310000000	\$205,206	-	\$205,206	1/1/2013 - 1/31/2014	\$1,554	\$1,554
3001471	34	3001471.34 Tunnel Part W/ Utility Poles	Install Utility Poles	3310000000	\$11,714	-	\$11,714	7/4/2013 - 6/29/2014	\$1,931	\$1,931
3001545	1	3001545.1 South Ops Surge Protection	Budget	3310000000	\$10,000	-	\$10,000	5/1/2014 - 6/31/2014	\$1,710	\$1,710
3001549	1	3001549.1 PRV Date Acquisition	Budget	3310000000	\$50,000	-	\$50,000	1/1/2014 - 6/30/2014	\$5,033	\$5,033
		Acct. Total		331			\$1,045,920		\$54,728	\$54,728
3001531	1	3001531.1 Bayville Sludge Management	Project Summary	3120000000	\$200,000	-	\$200,000	1/1/2014 - 9/30/2014	\$19,797	\$19,797
		Acct. Total		312			\$200,000		\$19,797	\$19,797
2000924	75	2000924.75 Howell School Rd 58965 vs 5871	LABOR-PLANNING	3430000000	\$495,528	-\$340,000	\$155,528	1/1/2014 - 9/30/2014	\$13,269	\$13,269
3000978	1	3000978.1 US201 US33 & Port Penn Rd	Budget Summary	3430000000	\$150,000	\$150,000	\$150,000	9/17/2014 - 9/30/2014	\$7,037	\$7,037
3001217	75	3001217.75 I-45 Crissner Main Extension	Planning Payroll	3430000000	\$76,743	-	\$76,743	9/17/2014 - 9/30/2014	\$1,415	\$1,415
3001506	1	3001506.1 DelPitt Manor 2014	Budget	3430000000	\$717,000	-\$190,000	\$527,000	7/14/2014 - 9/5/2014	\$2,337	\$2,337
3001508	1	3001508.1 Hemlock Heights Cell	Budget	3430000000	\$235,000	-	\$235,000	8/2/2014 - 8/29/2014	\$965	\$965
3001540	1	3001540.1 Chiddister Mill to Commercial	Budget Summary	3430000000	\$1,100,000	\$300,000	\$1,400,000	9/3/2014 - 9/30/2014	\$107,300	\$107,300
3001541	1	3001541.1 Odessa Woods Off-Site Main	Budget Summary	3430000000	\$50,000	-	\$50,000	5/1/2014 - 9/30/2014	\$7,206	\$7,206
3001543	1	3001543.1 Pleasant Hill Estates 2014	Budget	3430000000	\$225,000	-	\$225,000	3/1/2014 - 9/30/2014	\$2,050	\$2,050
		Acct. Total		343			\$1,715,276		\$32,287	\$32,287
3001211	1	3001211.1 Misc Meter Pro. Suster 2013	Budget	3460000000	\$48,000	-	\$48,000	6/30/2013 - 1/31/2014	\$3,479	\$3,479
3001527	1	3001527.1 Station Meter Checkouts	Budget	3460000000	\$117,000	-	\$117,000	1/1/2014 - 9/30/2014	\$6,648	\$6,648
		Acct. Total		346			\$165,000		\$10,127	\$10,127
3001244	1	3001244.1 Office and Building Improvements	Budget Summary	3900000000	\$15,000	-	\$15,000	7/1/2014 - 9/30/2014	\$1,635	\$1,635
3001557	1	3001557.1 Chemical Building Improvements	Budget	3900000000	\$50,000	-	\$50,000	1/1/2014 - 9/30/2014	\$2,722	\$2,722
		Acct. Total		390			\$65,000		\$4,357	\$4,357
3001307	1	3001307.1 Furniture and Fixtures	Budget	3910000000	\$12,000	-	\$12,000	1/1/2014 - 9/30/2014	\$3,000	\$3,000
		Acct. Total		391			\$12,000		\$3,000	\$3,000
3001002	1	3001002.1 Computer Automation 2012	Budget Summary	3910020000	\$160,000	-	\$160,000	1/1/2014 - 9/30/2014	\$11,428	\$11,428
3001010	1	3001010.1 System Auto for New Jires 2012	Budget Summary	3910020000	\$29,000	-	\$29,000	1/1/2014 - 9/30/2014	\$3,523	\$3,523
		Acct. Total		391.2			\$189,000		\$14,951	\$14,951
3001306	1	3001306.1 Budget Software	Budget	3910020000	\$50,000	-	\$50,000	1/1/2014 - 9/30/2014	\$2,750	\$2,750
		Acct. Total		391.4			\$50,000		\$2,750	\$2,750
3001247	1	3001247.1 Tools Facilities Maintenance	Budget Summary	3940000000	\$15,000	-	\$15,000	1/1/2014 - 9/30/2014	\$1,086	\$1,086
		Acct. Total		394			\$15,000		\$1,086	\$1,086
3001574	1	3001574.1 Miscellaneous Purchases (audio)	Budget	3970000000	\$6,000	-	\$6,000	1/1/2014 - 9/30/2014	\$718	\$718
		Acct. Total		397			\$6,000		\$718	\$718
3001544	1	3001544.1 South Ops Emergency Lights	Budget	3980000000	\$10,000	-	\$10,000	4/1/2014 - 6/30/2014	\$1,332	\$1,332
		Acct. Total		398			\$10,000		\$1,332	\$1,332
<b>TOTAL ALL ACCOUNTS</b>										
									\$4,784,828	\$469,922

Source: Artesian response to PSC-10-53.

ARTESIAN WATER COMPANY, INC.  
DPA Adjusted Accumulated Deferred Income Taxes (ADIT)

Description	Amount
(1) Artesian ADIT Associated w/Test Period Additions	\$601,285
(2) Artesian Proposed Test Period Plant Additions	\$26,075,727
(3) DPA Plant Addition Adjustment	(\$7,993,109)
(4) DPA Percentage of Artesian Test Period Plant Additions Adjustment: (3)/(2)	\$0
(5) DPA Adjustment to ADIT: $[-(4) \times (1)]$	\$184,315

**ARTESIAN WATER COMPANY, INC.**  
**DPA Adjusted Cash Working Capital**  
**(IN THOUSANDS OF DOLLARS)**

	AMOUNT	ARTESIAN (LEAD)/ LAG DAYS	WEIGHTED AMOUNT	Based on Artesian Amounts		DPA Adjustments to Artesian	
				DPA (LEAD)/ LAG DAYS	DPA WEIGHTED AMOUNT	Amount	DPA WEIGHTED AMOUNT
OPERATING REVENUES	\$64,288	38.49	\$2,474,500	35.2212	\$2,264,316	\$2,556	\$90,020
OPERATING EXPENSES							
PAYROLL	\$13,619	8.01	\$109,135	8.01	\$109,135	(\$584)	(\$4,680)
OTHER OPER. & MAINT.	\$20,588	10.01	\$206,125	10.01	\$206,125	(\$1,234)	(\$12,358)
TOTAL	\$34,207		\$315,260		\$315,260	(\$1,818)	(\$17,037)
OTHER TAXES	\$3,974	(61.71)	(\$245,259)	(61.71)	(\$245,259)	(\$256)	\$15,819
INCOME TAXES							
STATE	\$1,138	(46.58)	(\$53,001)	(46.58)	(\$53,001)	\$407	(\$18,941)
FEDERAL	\$3,511	36.00	\$126,404	36.00	\$126,404	\$1,493	\$53,766
	\$4,649		\$73,403		\$73,403	\$1,900	\$34,825
INTEREST							
FIRST MORTGAGE BONDS, SER Q	\$732	91.25 a	\$66,749	91.25	\$66,749		
SRF (1999, 2003-1, 2003-2)	\$370	91.25 a	\$33,719	91.25	\$33,719		
FIRST MORTGAGE BONDS, SER P	\$1,668	45.63 b	\$76,096	45.63	\$76,096		
FIRST MORTGAGE BONDS, SER O	\$1,634	15.21 c	\$24,853	15.21	\$24,853		
FIRST MORTGAGE BONDS, SER S	\$841	45.63 b	\$38,377	45.63	\$38,377		
SECURITY DEPOSIT	\$31	162.68	\$5,062	162.68	\$5,062		
FIRST MORTGAGE BONDS, SER R	\$1,511	45.63 b	\$68,925	45.63	\$68,925		
	\$6,786		\$313,782		\$313,782		\$0
	\$49,616	9.21	\$457,186	9.21	\$457,186	(\$174)	\$33,607
REVENUE LAG DAYS		38.49		35.2212			\$35
REQUIREMENT LAG DAYS		9.21		9.21			\$9
NET LAG		29.28		26.01			\$26
DAILY REQUIREMENTS (TOTAL REQ./365 DAYS)		\$135.93		\$135.93			(\$0)
CASH WORKING CAPITAL REQUIREMENTS		\$3,980		\$3,535			(\$12)
Total DPA Adjustment							(\$444)
Based on Artesian ProForma							(\$12)
DPA Adjustments to Artesian Rev & Cash Expense							(\$457)
TOTAL DPA ADJUSTMENT							(\$457)

Calculation format = service period/ payment periods/ midpoint

a - Semi-annual interest payments: 365/2/2

b - Quarterly interest payments: 365/4/2

c - Monthly interest payments: 365/12/2

## Schedule GAW-7

ARTESIAN WATER COMPANY, INC.  
DPA Revenue Adjustments

Customer Class	(1)	(2)	Customer Growth		(5)
	Normalization <u>1/</u>	Customer Charge <u>2/</u>	Public Fire <u>2/</u>	Usage Charge <u>3/</u>	Total Cust Growth
01 - Residential	\$955,582	\$277,661	\$83,905	\$632,184	\$993,750
02 - Commercial	(\$29,565)	\$36,759	\$19,507	\$146,752	\$203,017
03 - Motel/Hotel	(\$6,499)	\$3,048	\$2,408	\$34,996	\$40,452
04 - Apartments	\$120,959	\$12,581	\$7,540	\$103,325	\$123,446
05 - Trailers	\$42,349	\$0	\$0	\$0	\$0
06 - Industrial	\$1,735	\$0	\$0	\$0	\$0
07 - Gov't Agency	(\$37,943)	(\$1,580)	(\$872)	(\$8,868)	(\$11,320)
09 - Private Fire/Sprinkler	\$3,629	\$39,110	\$0	\$630	\$39,741
11 - Swimming Pool	\$0	\$5,874	\$3,165	\$0	\$9,039
12 - Seasonal	\$751	\$0	\$0	\$0	\$0
13 - Temporary Use of Water	\$0	\$0	\$0	\$0	\$0
14 - Internal Use of Water	\$0	\$606	\$366	\$0	\$972
15 - Irrigation	\$0	\$0	\$0	\$0	\$0
17 - Utility For Resale	\$0	\$0	\$0	\$0	\$0
19 - Religious Affiliation	\$1,262	\$0	\$0	\$0	\$0
20 - School	\$5,894	\$1,748	\$1,050	\$4,678	\$7,476
21 - Restaurant	\$10,912	\$3,064	\$1,385	\$23,710	\$28,158
22 - Medical Facility	\$2,846	\$1,990	\$915	\$40,943	\$43,847
<b>TOTAL SALES</b>	<b>\$1,071,911</b>	<b>\$380,859</b>	<b>\$119,369</b>	<b>\$978,350</b>	<b>\$1,478,578</b>

## Finance Chare Adjustment:

DPA Sales Rev Adjustment	\$2,550,489
Finance Charge Rate	0.21%
DPA Finance Chg Adjustment	\$5,356

1/ Per Schedule GAW-7.2.2/ Per Schedule GAW-7.4.3/ Per Schedule GAW-7.5.



ARTESIAN WATER COMPANY, INC.  
Normalized Usage

Customer Class	2011		2012		2013		Average
	(1) Usage	(2) Avg. Cust.	(3) Usage	(4) Avg. Cust.	(5) Usage	(6) Avg. Cust.	
15 - Irrigation Avg. Annual Usage/Cust.	-	-	-	-	-	-	-
17 - Utility for Resale Avg. Annual Usage/Cust.	355,540	18 20,316.6	372,558	19 20,138.3	495,123	21 24,152.3	21,535.7
19 - Religious Affiliation Avg. Annual Usage/Cust.	9,901	116 85.4	11,227	116 96.8	10,109	116 87.1	89.8
20 - School Avg. Annual Usage/Cust.	57,785	74 780.9	65,107	75 868.1	56,090	77 733.2	794.1
21 - Restaurant Avg. Annual Usage/Cust.	95,131	238 400.6	100,369	237 424.4	90,076	235 383.3	402.7
22 - Medical Facility Avg. Annual Usage/Cust.	183,481	22 8,340.0	190,217	22 8,646.2	183,284	22 8,331.1	8,439.1

Sources:

Usage amounts per response to PSC-RR-2-0573.

Average customer amounts calculated as the average of beginning year and end year per response to DPA-RR-103.

Note: Responses to PSC-RR-2-0573 and DPA-RR-103 did not provide these data for customer classes: Swimming Pool; Temporary Use of Water; Internal Use of Water; and, Irrigation.

## Schedule GAW-7.2

ARTESIAN WATER COMPANY, INC.  
Normalized Adjustment

Customer Class	(1) Artesian Test Period Cust. <u>1/</u>	(2) DPA Avg. Annual Use Per Cust. <u>2/</u>	(3) Artesian Avg. Annual Use Per Cust. <u>1/</u>	(4) DPA Average Annual Use Adjustment	(5) Weighted Average Usage Rate Per Kgal <u>1/</u>	(6) DPA Normalization Revenue Adjustment
01 - Residential	75,312	52.3	50.4	1.8	\$6.937	\$955,582
02 - Commercial	2,538	288.8	290.7	-1.9	\$6.059	(\$29,565)
03 - Motel/Hotel	33	1,955.3	1,988.3	-33.0	\$5.966	(\$6,499)
04 - Apartments	813	914.8	889.8	25.0	\$5.945	\$120,959
05 - Trailers	34	5,280.4	6,084.0	196.4	\$6.344	\$42,349
06 - Industrial	11	1,209.8	1,183.5	26.3	\$5.996	\$1,735
07 - Gov't Agency	182	1,239.0	1,297.2	-58.3	\$3.579 ?	(\$37,943)
09 - Private Fire/Sprinkler	779	4.8	4.2	0.6	\$8.277	\$3,629
11 - Swimming Pool	36	-	329.7	-	\$5.887	\$0
12 - Seasonal	4	1,919.2	1,888.5	30.7	\$6.122	\$751
13 - Temporary Use of Water	7	-	103.9	-	\$8.040	\$0
14 - Internal Use of Water	20	-	343.4	-	\$5.887	\$0
15 - Irrigation	67	-	673.1	-	\$6.343	\$0
17 - Utility For Resale	21	<u>a/</u>	25,616.9	-	\$3.101	\$0
19 - Religious Affiliation	116	89.8	87.9	1.8	\$5.887	\$1,262
20 - School	76	794.1	780.9	13.2	\$5.891	\$5,894
21 - Restaurant	233	402.7	394.8	8.0	\$5.887	\$10,912
22 - Medical Facility	22	8,439.1	8,412.5	26.7	\$4.852	\$2,846
<b>TOTAL</b>						<b>\$1,071,911</b>

1/ Per PSC-RR-2-0549 through PSC-RR-2-0557.2/ Per Schedule GAW-7.1.a/ Accept Company usage per customer.

ARTESIAN WATER COMPANY, INC.  
NUMBER OF CUSTOMERS (BILLS) BY CUSTOMER CLASS

Customer Class	2011		2012		2013		2014		Compound Annual Growth			Selected	
	Begin	End	Begin	End	Begin	End	Begin	End	1/11 - 7/14	1/12 - 7/14	1/13 - 7/14		Average
		% Change		% Change		% Change		% Change					
01 - Residential	72,942	73,612	73,612	73,977	73,977	74,686	74,686	76,868					
% Change	-	0.92%	-	0.50%	-	0.96%	-	2.92%	+1.47%	1.69%	2.45%	1.87%	1.47%
02 - Commercial	2,536	2,555	2,555	2,544	2,544	2,566	2,566	2,618	+0.89%	0.95%	1.83%	1.22%	0.89%
% Change	-	0.75%	-	-0.43%	-	0.86%	-	2.03%	+0.89%				
03 - Motel/Hotel	34	34	34	34	34	33	33	36	+1.61%				Use 7/14
% Change	-	0.00%	-	0.00%	-	-2.94%	-	9.09%					
04 - Apartments	812	814	814	815	815	813	813	832	+0.68%				Use 7/14
% Change	-	0.25%	-	0.12%	-	-0.25%	-	2.34%					
05 - Trailers	33	33	33	34	34	34	34	34	+0.84%				Use 7/14
% Change	-	0.00%	-	3.03%	-	0.00%	-	0.00%					
06 - Industrial	11	11	11	11	11	11	11	11	0.00%				Use 7/14
% Change	-	0.00%	-	0.00%	-	0.00%	-	0.00%					
07 - Gov't Agency	179	179	179	181	181	182	182	180	+0.16%				Use 7/14
% Change	-	0.00%	-	1.12%	-	0.55%	-	-1.10%					
09 - Private Fire/Sprinkler	762	766	766	773	773	780	780	795	+1.19%				Use 7/14
% Change	-	0.52%	-	0.91%	-	0.91%	-	1.92%					
11 - Swimming Pool	-	-	-	-	-	-	33	47					
% Change	-	-	-	-	-	-	-	42.42%					
12 - Seasonal	4	4	4	4	4	4	4	4	0.00%				Use 7/14
% Change	-	0.00%	-	0.00%	-	0.00%	-	0.00%					
13 - Temporary Use of Water	-	-	-	-	-	-	13	7					Use 7/14
% Change	-	-	-	-	-	-	-	-46.15%					
14 - Internal Use of Water	-	-	-	-	-	-	18	21					Use 7/14
% Change	-	-	-	-	-	-	-	16.67%					
15 - Irrigation	-	-	-	-	-	-	68	67					Use 7/14
% Change	-	-	-	-	-	-	-	-1.47%					
17 - Utility for Resale	18	17	17	20	20	21	21	21					Use 7/14
% Change	-	-5.56%	-	17.65%	-	5.00%	-	0.00%	+4.40%				

ARTESIAN WATER COMPANY, INC.  
NUMBER OF CUSTOMERS (BILLS) BY CUSTOMER CLASS

Customer Class	2011		2012		2013		2014		Compound Annual Growth				
	Begin	End	Begin	End	Begin	End	Begin	End	1/11-7/14	1/12-7/14	1/13-7/14	Average	Selected
19 - Religious Affiliation % Change	116	116	116	116	116	116	116	116	0.00%	0.00%			Use 7/14
20 - School % Change	74	74	74	76	76	77	77	77	0.00%	+1.12%			Use 7/14
21 - Restaurant % Change	236	239	239	234	234	236	236	243	1.27%	-2.09%	0.85%	+0.82%	Use 7/14
22 - Medical Facility % Change	22	22	22	22	22	22	22	23	0.00%	0.00%		+1.25%	Use 7/14

Sources:

DPA-RR-103 for 2011 through 2014 Begin, except for customer classes: Swimming Pool; Temporary Use of Water; Internal Use of Water; and, Irrigation.  
DPA-RR-101 for 2014 July.

Compound Annual Growth calculated as:

$$\frac{[(\text{July 2014 Value}) \div (\text{Jan 2011 Value})]^{1/3} - 1}{1}$$

where 0.27907 represents one divided by the increments Jan. 2011 through July 2014 of 3 + 7/12; i.e., 1/3.58333 = 0.27907.

ARTESIAN WATER COMPANY, INC.  
DPA ANALYSIS: ADDITIONAL CUSTOMER CHARGE REVENUE DUE TO GROWTH

Customer Class	(1)	(2)	(3)	Customer Charge Revenue			Public Fire Revenue		
	Customers		Adjustment	Average Customer Charge <sup>1/</sup>	Additional Revenue		Average Pub. Fire Charge <sup>1/</sup>	Additional Revenue	
	Artesian <sup>1/</sup>	DPA <sup>2/</sup>			Month	Annual		Month	Annual
01 - Residential	75,312	77,056	1,744	\$13.27	\$23,138	\$277,661	\$4.01	\$6,992	\$83,905
02 - Commercial	2,538	2,622	84	\$36.52	\$3,063	\$36,759	\$19.38	\$1,626	\$19,507
03 - Motel/Hotel	33	36	3	\$84.67	\$254	\$3,048	\$66.88	\$201	\$2,408
04 - Apartments	813	832	19	\$55.18	\$1,048	\$12,581	\$33.07	\$628	\$7,540
05 - Trailers	34	34	0	\$113.82	\$0	\$0	\$55.93	\$0	\$0
06 - Industrial	11	11	0	\$165.57	\$0	\$0	\$145.67	\$0	\$0
07 - Gov't Agency	182	180	-2	\$65.84	-\$132	-\$1,580	\$36.33	-\$73	-\$872
09 - Private Fire/Sprinkler	779	795	16	\$203.70	\$3,259	\$39,110	\$0.00	\$0	\$0
11 - Swimming Pool	36	47	11	\$44.50	\$490	\$5,874	\$23.98	\$264	\$3,165
12 - Seasonal	4	4	0	\$89.21	\$0	\$0	\$3.00	\$0	\$0
13 - Temporary Use of Water	7	7	0	\$15.48	\$0	\$0	\$5.71	\$0	\$0
14 - Internal Use of Water	20	21	1	\$50.49	\$50	\$606	\$30.51	\$31	\$366
15 - Irrigation	67	67	0	\$32.31	\$0	\$0	\$1.31	\$0	\$0
17 - Utility For Resale	21	21	0	\$49.09	\$0	\$0	\$0.00	\$0	\$0
19 - Religious Affiliation	116	116	0	\$29.35	\$0	\$0	\$13.84	\$0	\$0
20 - School	76	77	1	\$145.63	\$146	\$1,748	\$87.51	\$88	\$1,050
21 - Restaurant	233	243	10	\$25.53	\$255	\$3,064	\$11.54	\$115	\$1,385
22 - Medical Facility	22	23	1	\$165.81	\$166	\$1,990	\$76.26	\$76	\$915
<b>TOTAL</b>						<b>\$380,859</b>			<b>\$119,369</b>

<sup>1/</sup> Calculated per response to PSC-RR-2-0549 through PSC-RR-2-0557.

<sup>2/</sup> Calculated as July 2014 number of customers per DPA-RR-101 escalated based on the growth rate in Table 4 for Residential and Commercial, and equal to the July 2014 number of customers per DPA-RR-101 shown in Table 4.

## Schedule GAW-7.5

ARTESIAN WATER COMPANY, INC.  
Usage Revenue Growth

Customer Class	(1) DPA Customer Adjustment <u>1/</u>	(2) Average Annual Use Per Cust. <u>2/</u>	(3) Weighted Average Usage Rate Per Kgal <u>2/</u>	(4) DPA Usage Charge Revenue Adjustment
01 - Residential	1,744	52.3	\$6.937	\$632,184
02 - Commercial	84	288.8	\$6.059	\$146,752
03 - Motel/Hotel	3	1,955.3	\$5.966	\$34,996
04 - Apartments	19	914.8	\$5.945	\$103,325
05 - Trailers	0	6,280.4	\$6.344	\$0
06 - Industrial	0	1,209.8	\$5.996	\$0
07 - Gov't Agency	-2	1,239.0	\$3.579 ?	-\$8,868
09 - Private Fire/Sprinkler	16	4.8	\$8.277	\$630
11 - Swimming Pool	11	-	\$5.887	\$0
12 - Seasonal	0	1,919.2	\$6.122	\$0
13 - Temporary Use of Water	0	-	\$8.040	\$0
14 - Internal Use of Water	1	-	\$5.887	\$0
15 - Irrigation	0	-	\$6.343	\$0
17 - Utility For Resale	0	a/	\$3.101	\$0
19 - Religious Affiliation	0	89.8	\$5.887	\$0
20 - School	1	794.1	\$5.891	\$4,678
21 - Restaurant	10	402.7	\$5.887	\$23,710
22 - Medical Facility	1	8,439.1	\$4.852	\$40,943
<b>TOTAL</b>				<b>\$978,350</b>

1/ Per Schedule GAW-7.4.2/ Per Schedule GAW-7.1.

Schedule GAW-8

ARTESIAN WATER COMPANY, INC.  
DPA Adjusted Payroll and Benefit Costs

Line No.	Description	Test Year					Test Period						
		Direct Payroll	Pensions	Payroll Taxes	Employee Benefits	Comp Insurance	Total Payroll	Direct Payroll	Pensions	Payroll Taxes	Employee Benefits	Workers' Comp.	Total Payroll
1	Total Costs	\$ 16,953,927	\$985,785	\$1,298,729	\$3,944,554	\$168,778	\$ 23,371,783	\$ 17,673,837	1,125,280	1,347,592	4,432,319	202,969	\$ 24,781,987
2	Less: Allocated Payroll	1,288,535	76,147	99,678	303,480	35,564	\$ 1,803,404	1,343,250	66,921	103,428	341,007	\$ 37,074	\$ 1,911,680
3	Less: Cap. Payroll	2,945,765	175,422	228,065	659,614	33,915	\$ 4,083,781	3,076,905	155,134	202,390	601,236	\$ 36,980	\$ 4,072,645
4	Total O&M Costs	\$ 12,719,627	\$733,228	\$970,986	\$2,941,460	\$119,289	\$17,484,598	\$ 13,253,682	\$983,225	\$1,041,773	\$3,490,076	\$128,915	\$ 18,797,672

  

	DPA Adjustment to Test Year	Artesian Adjustment to Year	DPA Adjustment to Artesian
Payroll	\$ 534,065	\$1,118,030	-\$583,975
Pensions	\$ 149,959	\$168,880	-\$38,881
Payroll Taxes	\$ 70,787	\$117,695	-\$46,908
Employee Benefits	\$ 548,616	\$548,614	\$ 2
Compensation Insurance	\$ 9,816	\$7,984	\$1,832
Total	\$ 1,313,074	\$1,981,203	-\$668,132

1/ Pensions exclude Lifeguards per Artesian adjustment.

2/ Payroll taxes exclude Lifeguards per Artesian adjustment. SUTA not adjusted due to uncertainty of State tax rate and payroll limit.

Schedule GAW-9

ARTESIAN WATER COMPANY, INC.  
Purchased Power Expense

Artesian estimate in Filing	\$36,400
Aresian revised estimate per PSC-RR-32	\$10,082
DPA Adjustment	(\$26,318)

Schedule GAW-10

ARTESIAN WATER COMPANY, INC.  
Chester Water Authority Legal Costs

	Artesian Proposed	DPA Recommended	DPA Adjustment
Removal of Chester Legal Costs Reflected in Per Book Results	(\$813,304)	(\$813,304)	\$0
Cummulative Chester Legal Costs allowed for Rate Making	\$1,646,848	\$0	(\$1,646,848)
Amortization Period	\$7	-	
Annual Amortization	\$235,264	\$0	(\$235,264)
Expense Adjustment	(\$578,040)	(\$813,304)	(\$235,264)

Schedule GAW-11

ARTESIAN WATER COMPANY, INC.  
Purchased Water

Artesian assumed Purchased water rate Increase	\$347,348
DPA reversal of increase absent support or documentation	(\$347,348)

Schedule GAW-12

ARTESIAN WATER COMPANY, INC.  
Llangollen Well Expense

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Artesian Estimated variable costs @ 100% capacity factor 1/:			\$120,657
Historical Llangollen utilization:			
2011	1.451 MGD =	1007.639 gpm	
2012	1.103 MGD =	765.9722 gpm	
<u>2013</u>	1.002 MGD =	<u>695.8333</u> gpm	
Avg.		823.1481 gpm	
Capacity Factor (823/1500):		54.88%	
DPA Estimated variable costs			\$66,212
<hr/>			
DPA Adjustment			-\$54,445

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1/ Company assumes continuous operation @ maximum capacity of 1,500GPM.  
per page 2.5 of Hatch Mott MacDonald Report (PSC-RR-2-0895).

ARTESIAN WATER COMPANY, INC.  
Rate Case Expense

	Artesian Request			DPA Recommended		
	Cost	Normalization	Expense	Cost	Normalization	Expense
	Estimate	Period		Estimate	Period 1/	
Legal	\$600,000	2	\$300,000	\$300,000	3	\$100,000 2/
ROR Study	\$42,816	2	\$21,408	\$42,816	3	\$14,272
RD/CCOSS Study	\$50,000	2	\$25,000	\$50,000	3	\$16,667
PSC Charges	\$200,000	2	\$100,000	\$155,000	3	\$51,667 3/
DPA Charges	\$150,000	2	\$75,000	\$0	3	\$0 4/
Printing	\$6,000	2	\$3,000	\$6,000	3	\$2,000
Compensation Study	\$75,000	5	\$15,000	\$0	5	\$0 5/
<u>Misc. Charges</u>	<u>\$11,000</u>	<u>2</u>	<u>\$5,500</u>	<u>\$11,000</u>	<u>3</u>	<u>\$3,667</u>
Total	\$1,134,816		\$544,908	\$564,816		\$188,272
Less:						
TY Expenses (amort. of 08-96 & 11-207)			(\$105,445)			(\$105,445)
<b>Ratemaking Expense</b>			<b>\$439,463</b>			<b>\$82,827</b>
DPA Adjustment						(\$356,636)

Notes:

1/ Normalization period based on frequency of rate cases:

08-96	12/31/2007
11-207	12/31/2010 36 mths
14-132	12/31/2013 36 mths

2/ Artesian estimate of outside legal is excessive based on 1,000hrs @ \$600/hr.

Prior 3 rate case outside legal costs average was: \$294,863 (\$195,310; \$512,117; \$177162) per PSC-RR-66.  
Select \$300,000 as reasonable outside legal costs.

3/ Prior 3 PSC charge average was: \$151,596 (\$133,797; \$234493; \$86,498) Per DPA-RR-51d

Select \$155,000 as reasonable PSC cost

4/ DPA has not, and will not bill Artesian for rate case expense.

5/ Compensation study has not been conducted since Docket No. 08-96 ( per DPA-RR-105). No expense in test year, nor has a compensation study been performed subsequent to test year.

Schedule GAW-14

ARTESIAN WATER COMPANY, INC.  
Stock Options Expense

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Eliminate Stock Options Expense	(\$123,463)
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Source: Response to PSC-RR-91

Artesian Water Company, Inc.  
Social and Service Club Dues

Name	Description	Account	Total Amount	Allocated to AWC Pct.	Amt.	note
SOCIETY FOR HUMAN RESOURCE MANAGEMENT	Katrina Stevens Membership	9210010004	\$ 180.00	97.0934%	\$ 175	
AMERICAN WATER RESOURCES ASSOCIATION	Joanne Rufft Membership	9210010004	145.00	97.0934%	\$ 141	
SOCIETY OF CORPORATE SECRETARIES & GOVERNANCE PROFESSIONALS	Joe DiNunzio Membership	9210010004	645.00	89.0649%	\$ 574	Corp Officer
PROFESSIONAL EMERGENCY RESOURCE SERVICES	Hazardous Materials Response Membership for Company	9210010004	210.00	97.0934%	\$ 204	
DELAWARE SOCIETY OF CERTIFIED PUBLIC ACCOUNTANTS	Jennifer Finch Membership	9210010004	185.00	89.0649%	\$ 165	Corp Officer
AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS	Joe DiNunzio Membership & CGMA Designation	9210010004	467.92	89.0649%	\$ 412	Corp Officer
AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS	ACPA Membership	9210010004	405.00	89.0649%	\$ 361	Corp
DELAWARE STATE BAR ASSOCIATION	Jack Schreppel Member	9210010004	280.00	89.0649%	\$ 249	Corp Officer
WATER RESEARCH FOUNDATION	Subscription to Water Research Foundation Program	9210010004	15,433.00	100.0000%	\$ 15,433	
DELAWARE CENTER FOR HORTICULTURE	Corporate Membership	9210010004	125.00	89.0649%	\$ 111	
CHRISTINA CONSERVANCY	Corporate Membership	9210010004	100.00	89.0649%	\$ 89	
AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS	Membership	9210010004	225.00	89.0649%	\$ 200	
SUNGUARD SHAREHOLDERS SYSTEMS	Annual Fee Fastack Software User Group	9210010004	150.00	89.0649%	\$ 134	
ISACA - INFORMATION SYSTEMS AUDIT AND CONTROL ASSOCIATION	Membership/Information Systems Auditor License Renewal	9210010004	215.00	89.0649%	\$ 191	
AMERICAN MANAGEMENT ASSOCIATION	Membership Joe DiNunzio	9210010004	225.00	89.0649%	\$ 200	Corp Officer
AMERICAN WATER WORKS ASSOCIATION	E. Joseph Drejka Membership	9210010004	70.00	97.0934%	\$ 68	
BETTER BUSINESS BUREAU OF DE	Corporate Membership	9210010004	580.00	89.0649%	\$ 517	
COMMITTEE OF 100	Corporate Membership	9210010004	1,300.00	89.0649%	\$ 1,158	
DELAWARE SAFETY COUNCIL, INC	Corporate Membership	9210010004	300.00	89.0649%	\$ 267	
RED CLAY VALLEY ASSOC. INC	Corporate Membership	9210010004	250.00	89.0649%	\$ 223	
GROUNDWATER FOUNDATION	Corporate Membership	9210010004	100.00	89.0649%	\$ 89	
NATIONAL SAFETY COUNCIL	Corporate Membership	9210010004	645.00	89.0649%	\$ 574	
DELAWARE NATURE SOCIETY	Corporate Membership	9210010004	250.00	89.0649%	\$ 223	
SIERRA CLUB	Corporate Membership	9210010004	75.00	89.0649%	\$ 67	
DELAWARE STATE BAR ASSOCIATION	John J. Schreppel Membership	9210010004	250.00	89.0649%	\$ 223	
INSTITUTE OF MANAGEMENT ACCOUNTANTS	Joe DiNunzio Membership	9210010004	220.00	89.0649%	\$ 196	Corp Officer
NATIONAL GROUND WATER ASSOCIATION	John Theaeder Membership	9210010004	315.00	89.0649%	\$ 281	Corp Officer
WATER ENVIRONMENT FEDERATION	Brian Carbaugh Membership	9210010004	62.00	97.0934%	\$ 60	
MIDDLETOWN AREA CHAMBER OF COMMERCE	Corporate Membership	9210010004	150.00	89.0649%	\$ 134	
DELAWARE GREENWAYS	Corporate Membership	9210010004	150.00	89.0649%	\$ 134	
ASIS INTERNATIONAL	Corporate Membership - Security	9210010004	195.00	89.0649%	\$ 174	
DELAWARE BUSINESS ROUNDTABLE	Dian Taylor Membership	9210010004	2,500.00	89.0649%	\$ 2,227	Corp Officer
NATIONAL ASSOCIATION OF WATER COMPANIES-DELAWARE CHAPTER	Corporate Membership	9210010004	1,362.21	89.0649%	\$ 1,213	
PENNSYLVANIA INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS	Jay Walker Membership	9210010004	1,700.00	89.0649%	\$ 1,511	Artesian Resources
AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS	Jay Walker Membership & CGMA Designation	9210010004	325.00	89.0649%	\$ 289	Artesian Resources
DELAWARE SOCIETY OF CERTIFIED PUBLIC ACCOUNTANTS	Jay Walker Membership	9210010004	185.00	89.0649%	\$ 165	Artesian Resources
DELAWARE SECTION OF THE AMERICAN WATER RESOURCES ASSOCIATION	Professional Membership Joanne Rufft	9210010004	25.00	100.0000%	\$ 25	

Artesian Water Company, Inc.  
Social and Service Club Dues

Name	Description	Account	Total Amount	Pct.	Allocated to AWC Amt.	note
DELAWARE SECTION OF THE AMERICAN WATER RESOURCES ASSOCIATION	Corporate Membership	9210010004	100.00	100.00000%	\$100	
DELAWARE SECTION OF THE AMERICAN WATER RESOURCES ASSOCIATION	Membership Virginia Eisenbrey	9210010004	25.00	100.00000%	\$25	
DELAWARE SECTION OF THE AMERICAN WATER RESOURCES ASSOCIATION	Membership Brian Carbaugh	9210010004	25.00	100.00000%	\$25	
AMERICAN COUNCIL OF ENGINEERING COMPANIES OF DELAWARE	Membership Brian Carbaugh	9210010004	350.00	100.00000%	\$350	
INTERNATIONAL WOMEN'S FORUM	Dian Taylor Membership	9210010004	150.00	89.0649%	\$134	Corp Officer
DELAWARE SECTION OF THE AMERICAN WATER RESOURCES ASSOCIATION	Corporate Membership	9210010004	165.00	89.0649%	\$147	
SOCIETY FOR HUMAN RESOURCE MANAGEMENT	Katrina Stevens Membership	9210010004	180.00	89.0649%	\$160	
NATIONAL ASSOCIATION OF WATER COMPANIES	Corporate Membership	9300020006	36,268.92	97.0934%	\$35,215	
AMERICAN WATER WORKS ASSOCIATION	Corporate Membership	9300020006	8,060.00	97.0934%	\$7,826	
SOUTH JERSEY WATER PROFESSIONALS ASSOCIATION	Employee Membership - R. Penman	9300020006	75.00	97.0934%	\$73	
DELAWAREANS FOR ENVIRONMENTAL ECONOMIC DEVELOPMENT	Corporate Membership	9300020006	500.00	89.0649%	\$445	
CIVIC LEAGUE OF NEW CASTLE COUNTY	Employee Membership - S. Uindner	9300020006	50.00	89.0649%	\$45	
DELAWARE STATE CHAMBER OF COMMERCE	Corporate Membership	9300020006	1,360.00	89.0649%	\$1,211	
HOME BUILDERS ASSOCIATION OF DELAWARE	Employee Membership - J. Straight	9300020006	500.00	89.0649%	\$445	
NEW CASTLE COUNTY CHAMBER OF COMMERCE	Corporate Membership	9300020006	1,845.00	89.0649%	\$1,643	
DELAWARE LEAGUE OF LOCAL GOVERNMENTS	Corporate Membership	9300020006	600.00	89.0649%	\$534	
WATER RESOURCES ASSOCIATION OF THE DELAWARE RIVER BASIN	Corporate Membership	9300020006	2,500.00	100.00000%	\$2,500	
DELAWARE CONTRACTORS ASSOCIATION	Corporate Membership	9300020006	727.50	89.0649%	\$648	
GREATER MILLSBORO CHAMBER OF COMMERCE	Corporate Membership	9300020006	150.00	89.0649%	\$134	
SUSSEX COUNTY ASSOCIATION OF TOWNS	Corporate Membership	9300020006	250.00	89.0649%	\$223	
CENTRAL DELAWARE CHAMBER OF COMMERCE	Corporate Membership	9300020006	225.00	89.0649%	\$200	
GREATER GEORGETOWN CHAMBER OF COMMERCE	Corporate Membership	9300020006	150.00	89.0649%	\$134	
POSITIVE GROWTH ALLIANCE, INC.	Corporate Membership	9300020006	250.00	89.0649%	\$223	
BETHANY-FENWICK AREA CHAMBER OF COMMERCE	Corporate Membership	9300020006	244.00	89.0649%	\$217	
INASDAQ STOCK MARKET LLC	Corporate Membership	9300020006	35,000.00	89.0649%	\$31,173	
BETTER INVESTING	Corporate Membership	9300020006	3,900.00	89.0649%	\$3,474	
DELAWARE RURAL WATER ASSOCIATION	Corporate Membership	9300020006	550.00	100.00000%	\$550	
GREATER MILLSBORO CHAMBER OF COMMERCE	Corporate Membership	9300020006	150.00	89.0649%	\$134	

DPA Adjustment  
\$ 115,083  
(7,732.96)

172,815.55

Note: Allocation Factors per PSC-RR-2-0947

Corp  
Water Companies  
89.0649%  
97.0934%

Schedule GAW-16

**ARTESIAN WATER COMPANY, INC.**  
**Charitable Donations Expense**

	<b>DPA Adjustment</b>
Remove Artesian Proposed Donations Expense	(\$45,825)
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Per Schedule DLV-3F-S	

Schedule GAW-17

ARTESIAN WATER COMPANY, INC.  
Interest Synchronization

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DPA Rate Base Adjustments	(\$8,093,565) 1/
Weighted Cost of Debt	2.89%
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DPA Interest Adjustment	(\$233,904)
State Income Tax Effect	\$20,350
Federal Income Tax Effect	\$74,744

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1/ Per Schedule GAW-2.

**ARTESIAN WATER COMPANY, INC.**  
**DPA Direct Customer Cost Analysis**

<b>Rate Base</b>			
	<b>Gross Plant</b>		
	345 Services	\$32,786,256	
	346 Meters	\$21,454,371	
	<b>Total Gross Pll</b>	<b>\$54,220,627</b>	
	<b>Depr. Reserve</b>		
	345 Services	(\$10,162,045)	
	346 Meters	(\$6,291,122)	
	<b>Total Depr Reserve</b>	<b>(\$16,443,167)</b>	
	<b>Net Plant</b>		<b>\$37,777,460</b>
	<b>Customer Advances (Gross)</b>		
	Meters & Services	(\$150,571)	
	<b>Customer Advances (Reserve)</b>		
	Meters & Services	\$26,730	
	<b>Net Customer Advances</b>		
	Meters & Services	(\$123,841)	
	<b>Contrib. In Aide of Construction (Gross)</b>		
	Meters & Services	(\$7,393,567)	
	<b>Contrib. In Aide of Construction (Reserve)</b>		
	Meters & Services	\$2,472,709	
	<b>Net Contrib. In Aide of Construction</b>		
	Meters & Services	(\$4,920,876)	
	<b>TOTAL RATE BASE</b>		<b>\$32,732,741</b>
	<b>Expenses</b>		
	663 Operations Meters	\$632,492	
	675 Maintenance Services	\$823,848	
	676 Maintenance Meters	\$339,003	
	902 Meter Reading	\$298,447	
	903 Customer Records	\$1,936,132	
	<b>Total O&amp;M Expenses</b>	<b>\$4,029,922</b>	
	<b>Depreciation</b>		
	Services	\$842,093	
	Meters	\$1,268,677	
	<b>Depreciation Customer Advance</b>		
	Services	(\$2,902)	
	<b>Depreciation Contrib. In Aide of Construction</b>		
	Services	(\$142,390)	
	<b>Net Depreciation Expenses</b>	<b>\$1,965,478</b>	
	<b>TOTAL EXPENSES ( Excluding Income Tax)</b>		<b>\$5,998,400</b>
	<b>RETURN</b>		
	Interest	\$945,473	
	Equity	\$1,447,524	
	<b>Total Return</b>	<b>\$2,392,997</b>	
	<b>INCOME TAXES</b>		
	State	\$208,982	
	Federal	\$745,886	
	<b>Total Income Taxes</b>	<b>\$954,868</b>	
	<b>REVENUE REQUIREMENT</b>		
	O&M Expenses	\$4,029,922	
	Depreciation	\$1,965,478	
	Income Taxes	\$954,868	
	Return	\$2,392,997	
	<b>Total Revenue Requirement</b>	<b>\$9,343,063</b>	
	<b>Annual 5/8" ERC's</b>	<b>89,873</b>	
	<b>Quarterly 5/8" Customer Cost</b>	<b>\$25.99</b>	
	<b>Monthly 5/8" Customer Cost</b>	<b>\$8.66</b>	
	<b>Cost of Capital:</b>		
		<b>Percent</b>	<b>Cost</b>
	Debt	49.46%	5.84%
	Equity	50.54%	8.76%
	<b>Total</b>	<b>100.00%</b>	<b>7.31%</b>