BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF DELAWARE

IN THE MATTER OF THE APPLICATION OF	)
ARTESIAN WATER COMPANY INC.	) PSC DOCKET NO. 14-132
FOR AUTHORITY TO INCREASE RATES	)
AND CHARGES FOR WATER SERVICE	)
(FILED APRIL 11, 2014)	)

DIRECT TESTIMONY OF

DAVID E. PETERSON

ON BEHALF OF THE STAFF OF THE

DELAWARE PUBLIC SERVICE COMMISSION

SEPTEMBER 24, 2014

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

A. My name is David E. Peterson. I am a Senior Consultant employed by Chesapeake Regulatory Consultants, Inc. ("CRC"). Our business address is 1698 Saefern Way, Annapolis, Maryland 21401-6529. I maintain an office in Dunkirk, Maryland.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE IN THE PUBLIC UTILITY FIELD?

A. I graduated with a Bachelor of Science degree in Economics from South Dakota State University in May of 1977. In 1983, I received a Master's degree in Business Administration from the University of South Dakota. My graduate program included accounting and public utility courses at the University of Maryland.

In September 1977, I joined the Staff of the Fixed Utilities Division of the South Dakota Public Utilities Commission as a rate analyst. My responsibilities at the South Dakota Commission included analyzing and testifying on ratemaking matters arising in rate proceedings involving electric, gas and telephone utilities.

Since leaving the South Dakota Commission in 1980, I have continued performing cost of service and revenue requirement analyses as a consultant. In December 1980, I joined the public utility consulting firm of Hess & Lim, Inc. I remained with that firm until August 1991, when I joined CRC. Over the years, I have analyzed filings by electric, natural gas, propane, telephone, water, wastewater, and steam utilities in connection with utility rate and certificate proceedings before federal and state regulatory commissions.

Q. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY IN PUBLIC UTILITY RATE PROCEEDINGS?

A. Yes. I have presented testimony in 143 other proceedings before the state regulatory commissions in Alabama, Arkansas, California, Colorado, Connecticut, Delaware, Indiana, Kansas, Maine, Maryland, Montana, Nevada, New Jersey, New Mexico, New York, Pennsylvania, South Dakota, West Virginia, and Wyoming, and before the Federal Energy Regulatory Commission. Collectively, my testimonies have addressed the following topics: the appropriate test year, rate base, revenues, expenses, depreciation, taxes, capital structure, capital costs, rate of return, cost allocation, rate design, life-cycle analyses, affiliate transactions, mergers, acquisitions, and cost-tracking procedures.

In addition, in 2006 testified twice testified before the Energy Subcommittee of the Delaware House of Representatives on the issues of consolidated tax savings and tax normalization. Also in 2006, I presented a one-day seminar to the Delaware Public Service Commission ("Commission") on consolidated tax savings, tax normalization and other utility-related tax issues. In the spring of 2011, I co-presented along with Mr. Scott Hempling, the then-director of NRRI, a three-day seminar on public utility ratemaking principles and issues to the Commissioners and Staff of the Washington Utilities and Transportation Commission. In 2012, I presented a one-day seminar on electric cost allocation and rate design to the Colorado Office of Consumer Counsel. More recently, I presented a three-day seminar on public utility ratemaking, revenue requirements, cost allocation and rate design to the Staff of the Delaware Public Service Commission.

II. SUMMARY

Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A. My appearance in this proceeding is on behalf of the Public Service Commission Staff ("Commission Staff").

Q. HAVE YOU TESTIFIED IN OTHER PROCEEDINGS BEFORE THE DELAWARE PUBLIC SERVICE COMMISSION?

A. Yes, I have. I submitted testimony in the following Delaware rate proceedings:

- Delaware Electric Cooperative (Dkt No. 04-288)
- Tidewater Utilities, Inc. (Dkt No. 06-145)
- Delmarva Power & Light Company (Dkt Nos. 05-304, 11-258, 12-546, and 13-115)

My appearances in these proceedings were on behalf of the Commission Staff.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I was asked to assist the Commission Staff in analyzing Artesian Water Company's ("Artesian" or "the Company") rate increase request and proposed rate changes for its water distribution services in Delaware. Specifically, I was asked to prepare a detailed analysis of Artesian's rate base and *pro forma* operating income under rates that are currently in effect. From these determinations I calculated Artesian's present revenue deficiency. The purpose of my testimony is to present the results of my analysis to the Commission and to recommend alternative ratemaking treatments for several items included in the Company's claimed revenue requirement. Specifically, my testimony will address the proper determination of Artesian's rate base for ratemaking purposes and the allowance for cash working capital in the Company's rate base. I also summarize the impact of the adjustments recommended by other Commission Staff witnesses on Artesian's claimed revenue requirement.

Q. ARE YOU FAMILIAR WITH ARTESIAN'S FILING IN THIS PROCEEDING?

A. Yes, I am. I have carefully reviewed the Direct Testimonies and Exhibits sponsored by the Company's witnesses relating to the issues that I address herein. I also reviewed the Company's responses to data requests of the Commission Staff and the Department of Public Advocate, again relating to the issues that I address in my testimony.

Q. PLEASE SUMMARIZE ARTESIAN'S RATE REQUEST.

A. Artesian's current rates became effective January 1, 2012, as a result of a Commission-approved negotiated settlement in Docket No. 11-207 wherein Artesian was allowed a $6,250,000 annual revenue increase. This negotiated increase was premised on an overall rate of return of 7.91 percent, including a 10.0 percent return on common equity capitalization.

On April 11, 2014, Artesian filed an Application with the Commission requesting a $9,983,823 or 15.91 percent annual revenue increase. However, Artesian currently has a Distribution System Improvement Charge ("DISC") rider in its tariff. At the conclusion of this proceeding, revenues that are currently being collected under the DISC rider will be collected in Artesian's base rates and the DISC will be reset to zero. The DISC currently is set at 3.32 percent. Thus, if Artesian's rate request is approved as proposed, its service revenues will increase incrementally by 12.59 percent, since Artesian's customers are already paying the DISC rider charges.

On June 30, 2014, Artesian filed supplemental testimony and exhibits which updated and modified its original rate request. Artesian's updated revenue requirement analysis indicates a $9,859,005 revenue deficiency, which is slightly lower than its original rate request. Artesian has adopted this lower revenue deficiency as its recommended increase in this proceeding.

Artesian's supplemental rate request is premised on a Test Period consisting of the twelve months ending September 30, 2014. Artesian's proposed Test Period includes actual operating results for the six-month period ended March 31, 2014 and projected operating results for the months April through September, 2014. Artesian's revenue requirement analysis includes a 10.90 percent return on common equity and an 8.40 percent return on rate base. Artesian initially requested that its proposed rates become effective June 10, 2014. The Commission has suspended that effective date, however, allowing Artesian, by statute, to put rates into effect in June 2014, subject to refund. Artesian also put into effect an interim rate increase of $2,460,674 effective June 10, 2014, which is subject to refund.

Q. EARLIER YOU STATED THAT YOU WERE ASSIGNED THE TASK TO SUMMARIZE THE IMPACT OF ALL OF THE COMMISSION STAFF'S ADJUSTMENTS TO ARTESIAN'S CLAIMED REVENUE REQUIREMENT. HOW HAVE YOU ORGANIZED THE COMMISSION STAFF'S FINDINGS AND RECOMMENDATIONS?

A. My revenue requirement analysis, which is described in more detail later, incorporates my recommendations and adjustments to Artesian's rate request as well as the recommendations and adjustments of several other Commission Staff witnesses. The following individuals are presenting recommendations on behalf of Commission Staff. The issues on which each are testifying are also shown on the list below:

• Amy J. Woodward	Insurance, postage and rate case expenses.
• Jason R. Smith	Water treatment plant disposal costs, tank painting, Llangollen Well treatment costs, and information technology costs.
• Lisa B. Driggins	Purchased power, chemical cost, Chester legal costs and purchased water expense.
• Toni M. Loper	Charitable donations and social club dues.
• Shona Marshall	Tariff Changes.
• Ron Teixeira	Salaries and wages, employee benefits, pensions, workmen's compensation and payroll taxes.
• David Parcell	Capital structure and rate of return.
• Brian Kalcic	Class cost allocation and rate design.

To the extent that the Staff witnesses listed above are recommending adjustments to Artesian's claimed revenue requirement, I have incorporated those adjustments in my revenue requirement analysis.

Q. HAVE YOU PREPARED AN EXHIBIT SUMMARIZING THE COMMISSION STAFF'S RECOMMENDATIONS AND ADJUSTMENTS RELATIVE TO THE COMPANY'S CLAIMED REVENUE REQUIREMENT?

A. Yes, I have. Exhibit DEP-1 attached to my testimony summarizes the Commission Staff's determination of Artesian's revenue deficiency. Exhibit DEP-1, Schedule 1, page 1, summarizes the cumulative effect of the Commission

Staff's recommendations and adjustments on Artesian's claimed revenue requirement. From this schedule, I calculated that Artesian's current rates produce a 5.77 percent return on rate base. Commission Staff witness Mr. David Parcell is testifying in this proceeding that Artesian requires a 7.49 overall return on rate base. Mr. Parcell's overall return includes a 9.1 percent allowance on common equity capital. Therefore, on my Schedule 1, I show that Artesian's annual revenues will have to be increased by $5,755,724 in order to yield the 7.49 percent overall return that Mr. Parcell recommends, rather than the $9.859 million increase that Artesian is requesting.

Exhibit DEP-1, Schedule 2, is a multi-page schedule detailing my determination of Artesian's adjusted average rate base for the test year ended December 31, 2013. Schedule 3 shows my calculation of Artesian's *pro forma* earnings under present rates. The adjustments that bridge Artesian's updated revenue requirement analysis to my *pro forma* determination are shown in Column C on the first page of Schedules 2 and 3. The Commission Staff witness that is sponsoring each adjustment is identified at the bottom of the column in which the adjustment appears. The bases for the Commission Staff's recommended rate base, revenue and expense adjustments are set forth in the following section of my testimony and in the testimonies of the other Commission Staff witnesses.

III. RATE BASE

A. Test Year/Test Period

Q. WHAT IS THE PURPOSE OF A TEST YEAR WHEN SETTING PUBLIC UTILITY RATES?

A. Simply put, a "test year" in public utility rate making is a consecutive twelve-month period used to establish the utility's revenue requirement and average unit cost of service. Under the form of regulation traditionally utilized by the Delaware Commission, average rates are designed to produce revenues that will match the sum of a utility's operation and maintenance ("O&M") expenses, depreciation and amortization expenses, taxes, and a reasonable return allowance on invested capital. The matching principle, which is a pervasive principle in both accounting and ratemaking, requires that demand and sales volumes, revenues, expenses, and investments all be synchronized or measured within the context of the same accounting period – the test year or test period. In other words, the same period of time is examined when measuring all determinants of the utility's revenue requirement. A test year typically consists of a consecutive twelve-month period to reflect seasonal variations in the business cycle and often, but not always, coincides with a utility's fiscal year.

Q. ARE THERE DIFFERENT TYPES OF TEST YEARS THAT CAN BE USED TO ESTABLISH A UTILITY'S REVENUE REQUIREMENT?

A. Yes, there are. One type of test year that can be used is a fully actual or "historic" test year. When a fully historic test year is used, the actual investments and operating results that were recorded on the utility's financial statements for a recently completed twelve-month period are used, without adjustment, to measure the utility's revenue requirement. However, this type of test year is rarely, if ever, used. More typically, regulators and utility companies who endorse or rely on the historic test year concept to measure revenue requirements, generally reflect adjustments to per books operating results to recognize known and measurable changes that occurred during the test year or shortly thereafter.

The other type of test year that can be used in utility rate setting is a fully projected or forecasted test year. When this type of test year is used, the utility and regulators typically rely on the utility's capital and operating budgets, projections, and forecasts for a future period of time to estimate or project the utility's annual revenue requirement in that future period. Regulators can, and often do, also rely on a combination of actual and forecasted operating results to set utility rates.

Q. WHAT TEST PERIOD IS REFLECTED IN ARTESIAN'S REVENUE REQUIREMENT ANALYSIS?

A. Artesian's filing includes a summary of operating results for an actual test year consisting of the twelve months ended December 31, 2013. Its rate request, however, is premised on a test period ending September 30, 2014. Since Artesian's rate application was filed before the end of the test period it selected, the test period selected by Artesian necessarily must consist of a combination of actual operating results and forecasted or projected operating results. As stated previously, revenues, expenses and investments shown by Artesian for the months April through September 2014 are forecasted rather than actual results of operations. Thus, the Company's test period is essentially six months actual and six months forecasted.

Q. WHAT TYPE OF TEST YEAR DO YOU RECOMMEND?

A. It has been my consistent position throughout my regulatory career that public utility rates should be based on verifiable, current service costs. Thus, a recently completed historic test year, adjusted for known and measurable changes, is a more accurate, reliable and verifiable indicator of Artesian's average unit cost of service than is a forecasted or a partially forecasted test period. For this reason, I believe that a historic test year should be preferred by the Commission over Artesian's partially forecasted test period. Historic test years are based on actual operating results that can be verified by the Company's financial records. While one can argue that costs reflected in a historic test year are reasonable, necessary, or recurring, there can be no debate that such costs were actually incurred. Forecasts test periods, however, typically are based on a utility's capital and operating budgets rather than actual operations. Capital and operating budgets are subjective and are routinely changed and updated throughout the year. By their very nature, forecasts cannot be verified until after the fact. Thus, a test period relying on forecasts is unreliable and also unverifiable. When using forecasts to set utility rates there is a natural incentive for the utility to understate earnings and to overstate the revenue deficiency. That is, there can be a strong incentive for utilities to understate future revenues and overstate future expenses in order to achieve a larger rate award from the regulatory body. Regardless of how much effort the parties and the Commission expend attempting to verify the reasonableness of the assumptions relied on by Artesian in projecting revenues and costs for a future period, the task is simply unachievable. This elevates Artesian to the untenable position of virtually allowing it to set its own revenue requirement.

Moreover, using an actual test year does not depend on history repeating itself; nor are known post-test year cost increases ignored when using a historic test year. By incorporating all known and measurable changes into a historic test year, as the Commission Staff has attempted, proper rate/cost relationships can be established and the historic test year can reasonably reflect conditions that are expected to exist during the rate-effective period. Historic test years also satisfy the legitimate public interest concern that costs reflected in public utility rates be accurate, reliable and verifiable. A properly constructed and adjusted historic test year does not assume that history will repeat itself nor that business will remain constant if the facts suggest otherwise.

Q. IN YOUR PREVIOUS RESPONSE YOU MENTIONED ADJUSTMENTS TO A HISTORIC TEST YEAR. WHEN ARE ADJUSTMENTS APPROPRIATE?

A. It may be necessary to conform a utility's financial statements to the regulatory commission's ratemaking practices and accounting requirements. It may also be appropriate to eliminate nonrecurring transactions that occurred during the test period and to "normalize" or smooth abnormal test period transactions. Finally, it may be appropriate to annualize significant changes that occurred during the test year and to recognize post-test year changes provided that they have a continuing effect on operations and are known and measurable, and do not distort the test year matching principle. These types of adjustments make a historic test year reasonably representative of the conditions that are likely to exist when the revised rates become effective. Such adjustments also provide the utility a reasonable opportunity to earn its authorized rate of return.

Q. WHAT CONSTITUTES A "KNOWN AND MEASURABLE" CHANGE?

A. In my opinion, simply including forecasts in a utility's operating budget does not qualify an expected change in revenues or expenses as a "known and measurable change." For the same reasons that I object to using forecast test years to set rates, mere budgeted items should not be considered sufficient to meet the known and measurable standard.

The standard that I consistently apply in analyzing *pro forma* adjustments is that a "known" change is a change in cost or operation that has already occurred or will definitely occur at a specific time in the near future. "Measurable" to me means the ability to determine with reasonable accuracy the entire impact that a change will have on going-forward operations. For example, a change in Federal income tax rates that already has been signed into law is usually considered known and measurable because the tax rate change can be fully incorporated into test year revenues, expenses and rate base, without altering established test year relationships between revenue, expenses, and investment. Certain other price level changes can also be considered known and measurable if they do not result in corresponding volume changes or if there are no other offsetting factors to consider. Thus, a known and measurable change is one where there is a reasonable certainty that a change has occurred, or will occur shortly, and where the total effects of the change are now determinable with reasonable accuracy.

Q. HAS THE COMMISSION LIMITED THE NUMBER OF KNOWN CHANGE ADJUSTMENTS THAT A UTILITY CAN BRING FORWARD IN A BASE RATE PROCEEDING?

A. Not to my knowledge. The only stipulation which I am aware of is that post-test year adjustments be known and measurable and that they occur within nine months following the end of the test year. Aside from that, conceivably a utility can propose any number of adjustments in a rate proceeding.

Therefore, I recommend that the Commission measure Artesian's revenue requirement in this proceeding with reference to the historic test year ended December 31, 2013. This is the test year that is reflected in the Commission Staff's revenue requirement study, which is summarized in Exhibit DEP-1.

B. Average v. Year-end Rate Base

Q. HOW DID ARTESIAN CALCULATE RATE BASE IN THIS PROCEEDING?

A. As I previously stated, Artesian's claimed revenue requirement in this proceeding is premised on a partially forecasted test year ending September 30, 2014. Artesian's rate base includes forecasted plant and reserve balances as of the end of the test period – i.e., the forecasted balances at September 30, 2014. Thus, Artesian is proposing to calculate rate base using what is commonly referred to as year-end rate base.

Q. IS YEAR-END RATE BASE TREATMENT AS ARTESIAN PROPOSES IN THIS PROCEEDING A ROUTINE COMMISSION PRACTICE?

A. No, it is not. Although in specific cases an exception has been made, the Commission's general policy has been to require jurisdictional utilities to calculate rate base using the thirteen-point average method, rather than the test year-end method. In fact, the Commission recently affirmed its use of the thirteen-point average method for measuring rate base in Delmarva's most recent electric rate proceeding, Docket No. 13-115. I was the Commission Staff's witness who presented that recommendation to the Commission in the Delmarva rate proceeding.

Q. DID THE COMPANY PROVIDE ANY SUPPORT FOR USING A YEAR-END RATHER THAN A 13-POINT AVERAGE RATE BASE?

A. No, it did not.

Q. DO YOU SUPPORT ARTESIAN'S YEAR-END RATE BASE?

A. No, I do not.

Q. WHAT IS YOUR OBJECTION TO USING A YEAR-END RATE BASE?

A. As a pure ratemaking matter, year-end rate base is conceptually wrong because it introduces a distortion, or more specifically a mismatch, in the measurement of a utility's earnings and revenue requirement. Revenues are earned and expenses are incurred throughout the entire test year. The matching principle requires that plant investment also be measured throughout the entire test year by using an average, rather than year-end, rate base. A year-end rate base results in an understatement of the income producing capability of the utility's plant investment and excessive rates.

Q. CAN YOU DEMONSTRATE HOW USING YEAR-END RATE BASE RESULTS IN AN UNDERSTATEMENT OF THE INCOME PRODUCING CAPABILITY OF A UTILITY'S PLANT INVESTMENT?

A. Yes. A simplified example using a hypothetical savings account will demonstrate the type of distortion in earnings that results when year-end rate base is used. In this example, assume that an individual has a savings account in a bank with a $100 balance at the beginning of the year. The bank pays simple interest at 1 percent per month. Assume further that an additional $100 deposit was made on December 1. At 1 percent interest per month, by the end of the year the bank would have paid the depositor $13 in interest.

The distortion occurs when one tries to measure the annual earnings rate, similar to what is done in a utility rate proceeding. The following table compares the indicated annual rate of earning under the year-end approach and under the average rate base approach.

Indicated Annual Rate of Return

	Year-End Approach	Average Approach
Account Balance	$200	$108
Annual Interest	$13	$13
Annual Earnings Rate	6.5%	12%

Clearly, when a bank pays simple interest at a rate of 1 percent per month, the annual earnings rate must be 12 percent, not 6.5 percent as shown in this example under Artesian's year-end rate base approach. To put it another way, why would a banker pay a depositor $13 in interest if nothing was deposited until December 1? Obviously, the banker would not pay $13 in interest in such a case. Nor is it reasonable for ratepayers to pay an annualized return on plant that was only in service a short time during the test year.

When plant balances are growing, as they are for Artesian, using year-end rate base understates the income producing capability of existing rates and overstates the revenue deficiency. Rates set using year-end rate base will provide Artesian an unwarranted attrition allowance. This results because year-end rate base understates the income producing capability of the Company's present rates and overstates Artesian's present revenue deficiency. Artesian's ratepayers end up paying rates that are higher than necessary to compensate the Company for its cost of service. To avoid the distortion and understatement of Artesian's actual and *pro forma* earnings, I recommend that the Commission require that Artesian's revenue requirement and revenue deficiency be determined using the average rate base as it has traditionally done.

Q. ARTESIAN HAS PROPOSED REVENUE AND DEPRECIATION EXPENSE ADJUSTMENTS IN AN ATTEMPT TO ANNUALIZE INCOME TO THE END OF THE TEST PERIOD IN ORDER TO ACHIEVE THE PROPER MATCHING RESULT THAT YOU SPOKE OF EARLIER. DO THESE ADJUSTMENTS RESOLVE THE CONCERN THAT USING YEAR-END RATE BASE RESULTS IN A MISMATCH BETWEEN INVESTMENT AND INCOME?

A. No, they do not. Literally, every line item on the income statement, not just sales revenue and depreciation expense, would have to be annualized at its year-end level in order to achieve the proper matching result. Even if that were possible, which it is not, one would then be left with a test period that does not reflect the normal and expected seasonal variations that occur throughout an entire year. That is, Artesian's revenue requirement would reflect a snapshot of its operations at the end of the test period, rather than reflecting on-going, normal operations occurring throughout the entire year. For these reasons, I have reversed Artesian's proposed test year-end revenue annualization, revenue growth and year-end depreciation expense adjustments in Exhibit DEP-1, Schedule 3.

Q. HAVE YOU PREPARED AN EXHIBIT TO SHOW THE ADJUSTMENTS THAT ARE NECESSARY TO CONVERT ARTESIAN'S YEAR-END RATE BASE TO AN AVERAGE RATE BASE?

A. Yes, I have. My Exhibit DEP-1, Schedule 2, page 2, summarizes all of the adjustments that are necessary to convert Mr. Valcarenghi's year-end rate base to a thirteen-point average (i.e., an average of the test year beginning balance and each of the twelve month-end balances). The detail of these adjustments is provided in my Schedule 2, on page 3. This schedule shows in Column E that Mr. Valcarenghi's rate base should be reduced by $6,576,137 to properly reflect an average rate base.

C. Post-Test Year Plant Closings

Q. IS MR. VALCARENGHI PROPOSING ANY ADJUSTMENT TO THE COMPANY'S TEST YEAR-END PLANT BALANCES?

A. Yes, he is. Mr. Valcarenghi is proposing to include in rate base adjustments totaling $24.6 million for forecasted plant closings, net of forecasted retirements, through September 30, 2014.

Q. ARE MR. VALCARENGHI'S PLANT ADJUSTMENTS APPROPRIATE TO INCLUDE IN RATE BASE?

A. No. His adjustment to include in rate base a forecast of post-test year plant additions constitutes a violation of the test period matching principle in that it creates a mismatch between plant investment and the revenues and expenses that flow from that plant investment. In so doing, calculating earnings under present rates using the post-test year plant additions will result in an understatement of the earnings capability of Artesian's present rates. This, in turn, results in an overstatement of Artesian's revenue deficiency and revenue requirement.

Earlier, I discussed my objections to including the Company's unreliable and unverifiable forecasts in the revenue requirement. These same objections also apply to Artesian's forecasted plant additions. Moreover, since Artesian is proposing only limited revenue and depreciation expense annualization adjustments, including the forecasted plant additions in rate base creates a significant test year matching error.

The matching principle is a fundamental or "pervasive" principle in accounting and in public utility ratemaking. The matching principle requires that test year revenues and expenses be compared with plant in service throughout the test year – i.e., the thirteen point average. Mr. Valcarenghi's post-test year plant adjustments distort the test year relationship between plant in service and other elements of the Company's revenue requirement. This results because Mr. Valcarenghi's revenue requirement analysis fails to consider the full effects of the forecasted plant additions on the Company's revenue and expenses beyond the limited adjustments to revenue and depreciation expense that Mr. Valcarenghi proposed. For example, even though Mr. Valcarenghi has reflected significant plant additions and plant retirements in his proposed rate base, he has completely ignored the impact that will result from these additions and retirements on the Company's operations and maintenance expenses going forward. Newer facilities generally are more efficient and require less maintenance and fewer repairs during the early portion of their service lives. Similarly, higher operations and maintenance costs associated with facilities that will soon be retired will be reduced or eliminated upon retirement. Yet, none of these effects are reflected in Mr. Valcarenghi's revenue requirement analysis. Because of the both speculative and incomplete nature of Mr. Valcarenghi's post-test year plant additions and related adjustments, I recommend that rate base reflect only plant in service during the test year calculated using a thirteen-point average. My adjustments to reverse Mr. Valcarenghi's proposed post-test year rate base adjustments are shown on my Exhibit DEP-1, Schedule 2, page 3, Column C. My adjustment reduces Mr. Valcarenghi's proposed rate base by approximately $13.3 million. On my Schedule 3, page 2a, Columns B and C, I reversed Mr. Valcarenghi's test year revenue annualization and test period growth adjustments. Also on my Schedule 3, Page 2b in Column B, I reflect the reversal of Mr. Valcarenghi's depreciation annualization adjustment. In Column D, I show the effect of reversing Mr. Valcarenghi's proposed property tax adjustment. All of these adjustments are necessary to achieve the proper test year matching result.

D. Cash Working Capital

Q. FOR WHAT PURPOSE SHOULD A CASH WORKING CAPITAL ALLOWANCE BE INCLUDED IN RATE BASE?

A. A cash working capital allowance should be included in rate base to compensate investors for investor-supplied funds, if any, used to provide the day-to-day cash needs of the utility. These cash needs are measured in a lead-lag study. Specifically, a lead-lag study measures the time between (1) the provision of service to utility customers and the receipt of revenue for that service by the utility, and (2) the provision of service by the utility and its disbursements to employees and vendors in payment for the associated cost of those services. The difference between the revenue "lag" and the expense "lead" is expressed in days. The difference, which can be either a net lag or a net lead, multiplied by the average daily cash operating expenses, quantifies the cash working capital required for, or available from utility operations.

Q. DID ARTESIAN PRESENT A LEAD-LAG STUDY IN THIS PROCEEDING?

A. Yes. Based on the result of the Company's lead-lag analysis, Mr. Valcarenghi included a $2,535,123 allowance for cash working capital in his proposed rate base.

Q. ARE YOU RECOMMENDING ANY ADJUSTMENTS TO MR. VALCARENGHI'S PROPOSED CASH WORKING CAPITAL ALLOWANCE?

A. Yes, I am. I am recommending two types of adjustments to the Company's claimed allowance for cash working capital. First, my recommended cash working capital rate base allowance reflects expenses occurring during the test year ended December 31, 2013, as adjusted by the Commission Staff, rather than the test period ending September 30, 2014, which Mr. Valcarenghi proposed. Second, I disagree with, and have excluded recognition for, deferred income taxes in the lead-lag study. As I explain next, deferred taxes are a non-cash expense and thus, do not create a requirement for working cash.

Q. WHY IS IT IMPROPER TO INCLUDE NON-CASH EXPENSES IN CASH WORKING CAPITAL?

A. As I stated earlier in my testimony, a rate base allowance for cash working capital is intended to compensate the utility for investor funds used to finance the day-to-day cash operating needs of the utility. Cash flows arising from non-cash expenses do not serve this purpose and, therefore, should not be included in the working cash allowance.

Q. SPECIFICALLY, WHAT IS YOUR OBJECTION TO INCLUDING DEFERRED INCOME TAXES IN THE LEAD/LAG STUDY?

A. There is no continuing cash payment required from the Company or from investors for deferred taxes. Because no periodic cash outlay is required, no investment in working capital is required. What makes it even more problematic to include deferred taxes in a lead/lag analysis is that investor-supplied capital is never involved in the Company's deferred tax balance. Deferred taxes have been and are being collected from ratepayers, without being paid to the US Treasury by the Company. It is perverse to conclude that deferred tax expenses create a cash working capital requirement since no investor funds were ever expended for them. Therefore, it is not appropriate to include deferred taxes in the lead-lag study.

The cash working capital calculations that I show on my Exhibit DEP-1, Schedule 2, page 4, reflect the exclusion of deferred income taxes from the lead-lag analysis and the synchronization of the rate base allowance for cash working capital with the Commission Staff's determination of *pro forma* cash operating expenses. As shown on this schedule, my adjustments reduce the Company's claimed allowance for cash working capital by $420,000.

E. Rate Base Summary

Q. PLEASE SUMMARIZE YOUR RECOMMENDED RATE BASE.

A. Mr. Valecarenghi proposed a $221,242,816 rate base for Artesian's water distribution operations in Delaware. My rate base adjustments, which are summarized on Exhibit DEP-1, Schedule 2, page 2, reduce Artesian's claimed rate base by $20,040,448. I recommend that the Commission set Artesian's rate base at $201,202,368, as detailed on my Exhibit DEP-1, Schedule 2, page 1.

IV. EARNINGS UNDER CURRENT RATES

Q. WHERE IN EXHIBIT DEP-1 DO YOU SHOW THE COMMISSION STAFF'S ADJUSTMENTS TO ARTESIAN'S CALCULATION OF *PRO FORMA* INCOME UNDER PRESENT RATES?

A. All of the Commission Staff's income adjustments are summarized on Exhibit DEP-1, Schedule 3, pages 2, 2a, and 2b. These schedules show the revenue, expense, tax and net income effects of the Commission Staff's adjustments to Artesian's updated test year presentation in this proceeding. The remaining pages in Schedule 3 detail the development of the Commission Staff's adjustments.

A. Average v. Year-end Rate Base

Q. WHAT ADJUSTMENTS TO MR. VALCARENGHI'S INCOME STATEMENT ARE YOU RECOMMENDING TO CONVERT FROM TEST PERIOD YEAR-END RATE BASE TO AN AVERAGE RATE BASE FOR THE TEST YEAR?

A. Mr. Valcarenghi annualized revenues associated with the number of customers at December 31, 2013. In addition, he projected customer and revenue growth and annualized the book depreciation expense on the forecasted plant balance

September 31, 2014. Because I am recommending that the Commission determine Artesian's revenue requirement using the average rate base for the test year ended December 31, 2013, rather than test period year-end rate base at September 30, 2014, it was necessary for me to reverse both the revenue and the depreciation expense annualization adjustments. My reversal of these adjustments is detailed on my Schedule 3, page 2a, in Columns B and C.

B. Donations and Club Dues

Q. WHICH WITNESS IS SPONSORING THE COMMISSION STAFF'S RECOMMENDATIONS CONCERNING THE COMPANY'S CLAIMED EXPENSES FOR DONATIONS AND CLUB DUES?

A. Ms. Loper is sponsoring the Commission Staff's adjustments in this regard. Her adjustments increase the Company's claimed operating income by $18,161.

C. Labor and Payroll Taxes

Q. THE NEXT ADJUSTMENT THAT YOU SHOW ON YOUR EXHIBIT___(DEP-1), SCHEDULE 2, PAGE 2 IS FOR LABOR AND PAYROLL TAX EXPENSES. WHICH STAFF WITNESS IS SPONSORING THESE ADJUSTMENTS?

A. Mr. Teixeira is sponsoring the Commission Staff's recommended adjustments to the Company's claimed payroll and payroll-related tax claims. Together, Mr. Teixeira's proposed payroll related adjustments increase the Company's calculation of *pro forma* operating income by $1,030,966.

D. Purchase Power

Q. PLEASE IDENTIFY THE COMMISSION STAFF WITNESS THAT IS SPONORING THE ADJUSTMENT TO ARTESIAN'S CLAIMED PURCHASE POWER EXPENSE.

A. Ms. Lisa B. Driggins is sponsoring this adjustment. Her adjustment decreases Artesian's claimed *pro forma* income by $6,075.

E. Llangollen Well Treatment

Q. WHICH STAFF WITNESS ADDRESSES THE LLANGOLLEN WELL TREATMENT COSTS THAT THE COMPANY INCLUDED ITS IN REQUESTED REVENUE REQUIREMENT?

A. Mr. Jason R. Smith is providing testimony on and is sponsoring the Commission Staff's recommendation concerning the costs associated with the Llangollen Well. His adjustment increases *pro forma* operating income by $72,706.

F. Rate Case Expense

Q. IS THE COMMISSION STAFF RECOMMENDING ANY ADJUSTMENTS TO THE COMPANY'S CLAIMED ALLOWANCE FOR RATE CASE EXPENSES?

A. Yes. Ms. Amy J. Woodward is sponsoring the Commission Staff's rate case expense adjustments. Her recommended adjustments on this issue increase Artesian's claimed *pro forma* operating income by $200,185.

G. DEPRECIATION EXPENSE

Q. WAS IT NECESSARY FOR THE COMMISSION STAFF TO ADJUST ARTESIAN'S PROPOSED ALLOWANCE FOR DEPRECIATION AND AMORTIZATION EXPENSES?

A. Yes, it was. Because the Commission Staff's revenue requirement determination is based on 2013 actual operating results adjusted for known and measurable changes, including an average rate base, it was necessary for me to reverse Artesian's claimed depreciation expense which has been annualized to reflect forecasted plant additions at September 30, 2014. My depreciation adjustment increases *pro forma* operating income by $715,701.

H. Deferred Income Taxes

Q. PLEASE EXPLAIN THE DEFERRED TAX ADJUSTMENT THAT YOU SHOW ON YOUR EXHIBIT DEP-1, SCHEDULE 3, PAGE 2B, IN COLUMN C.

A. Artesian is forecasting a very significant decline in its deferred tax expense for the test period ending September 30, 2014, as compared to the expense that it actually incurred during the test year ended December 31, 2013. Since I am recommending using the historic test year because it is based on actual, known costs rather that forecasts, it is necessary for me to reverse Artesian's lower forecasted deferred tax expense and replace it with the actual expense for the historic test year. My deferred adjustment reduces Artesian's claimed net income by $1,773,009.

J. Property Taxes

Q. ARE YOU ALSO SPONSORING THE COMMISSION STAFF'S ADJUSTMENT TO CLAIMED PROPERTY TAXES?

A. Yes, I am. Again, as with depreciation and deferred tax expenses, it is necessary for me to reverse Artesian's forecasted property tax expense because it is not known and measurable. Rather, my adjustment to property taxes includes an allowance based on the Artesian's latest actual tax assessment. My property tax adjustment increases Artesian's claimed pro forma operating income by $66,641.

K. Interest Synchronization

Q. PLEASE EXPLAIN THE INTEREST SYNCHRONIZATION ADJUSTMENT THAT YOU SHOW ON SCHEDULE 3, PAGE 6.

A. This schedule shows the required adjustment to state and federal income taxes to synchronize the interest expense tax deduction with the debt portion of the overall return requirement that Staff is recommending. The pro forma tax deduction for interest expense is the product of the weighted cost of debt and my rate base determination and results in a $228,718 increase in income taxes currently payable.

L. Summary of Revenue Requirement

Q. WHAT IS THE COMBINED EFFECT OF THE COMMISSION STAFF'S ADJUSTMENTS TO ARTESIAN'S UPDATED REVENUE DEFICIENCY CALCULATION?

A. As shown on my Schedule 3, page 1, Artesian calculated *pro forma* earnings under present rates of $12,668,422 for the partially forecasted test period ending September 30, 2014. The Commission Staff's combined income adjustments add $1,052,430 to Artesian's claimed *pro forma* earnings. Thus, I calculate that Artesian's present revenues generate $11,615,993 of earnings under *pro forma* conditions for the adjusted test year ended December 31, 2013 and a 5.77 percent return on the test year average rate base.

Commission Staff Mr. Parcell determined that Artesian requires a 9.10 percent return on common equity capital and a 7.49 percent overall return on rate base. Rate levels will have to be increased by $5,755,724 to produce a 7.49 percent overall rate of return for Artesian. Therefore, I recommend that Artesian's proposed rate schedules be rejected and that the Company be ordered to file new rate schedules reflecting the lower revenue requirement that the Commission Staff has determined is necessary at this time.

Q. DOES THIS COMPLETE YOUR TESTIMONY AT THIS TIME?

A. Yes, it does.

ARTESIAN WATER COMPANY, INC.

Revenue Deficiency Calculation
Test Year Ended December 31, 2013

(A)	(B)
1. Rate base	$201,202,368
2. Operating income under present rates	11,615,993
3. Rate of return under present rates	5.77%
4. Staff recommended rate of return	7.49%
5. Operating income requirement	$15,070,057
6. Operating income under present rates	11,615,993
7. Income deficiency/(excess)	$3,454,064
8. Revenue and income taxes	2,301,660
9. Revenue deficiency/(excess)	$5,755,724

Sources:
Line 1: Schedule 2, page 1
Line 2: Schedule 3, page 1
Line 4: Page 3, herein
Line 8: Revenue conversion factor from page 2

ARTESIAN WATER COMPANY, INC.

Revenue Conversion Factor
Test Year Ended December 31, 2013

(A)	(B)
1. Revenue	1.000000
2. Add: Finance charge	0.002100
3. Less: Bad debt expense	0.003200
4. PSC Assessment	0.003000
5. Net operating income before income taxes	0.995900
6. State income tax at 8.7%	0.086643
7. Net income for federal income taxes	0.909257
8. Federal income taxes at 34%	0.309147
9. Finance charge	(0.002100)
10. Bad debt expense	0.003200
11. PSC assessment	0.003000
12. State income taxes	0.086643
13. Federal income taxes	0.309147
14. Total revenue and income taxes	0.399891
15. Tax gross-up factor	1.666363

Sources:
Artesian Schedule DLV-5
Artesian Response to PSC-RR-3

ARTESIAN WATER COMPANY, INC.

Capital Structure/Rate of Return
Test Year Ended December 31, 2013

	Capitalization Ratio	Cost	Weighted Cost
(A)	(B)	(C)	(D)
1. Debt	49.46%	5.84%	2.89%
2. Common equity	50.54%	9.10%	4.60%
3. Total	100.00%		7.49%

Sources:
Artesian Schedule DLV-4, Schedule DLV-4A
Staff witness Parcell

ARTESIAN WATER COMPANY, INC.

Rate Base
Test Year Ended December 31, 2013

	As Filed	Staff Adjustments	Staff As Adjusted
(A)	(B)	(C)	(D)
1. Plant in service	$431,789,794	($34,990,135)	$396,799,659
2. Intangible assets	140,035	0	140,035
3. Less: Accumulated depreciation	96,571,284	(10,921,068)	85,650,216
4. Less: Advances for construction	11,285,434	1,916,098	13,201,532
5. Less: CIAC	82,805,854	(6,100,785)	76,705,069
6. Less: Deferred income taxes	43,101,423	(1,838,705)	41,262,718
7. Less: Deferred ITC	585,700	26,064	611,764
8. Add: Accumulated dep on advances	1,895,916	(70,869)	1,825,047
9. Add: Accumulated dep on CIAC	16,098,900	(1,501,762)	14,597,138
10. Materials and supplies	1,462,553	12,691	1,475,244
11. Working capital	2,535,123	(420,000)	2,115,123
12. Taxes paid on CIAC	1,670,190	11,231	1,681,421
13. Total rate base	$221,242,816	($20,040,448)	$201,202,368

Sources:
Column B: Artesian Schedule DLV-2-S
Column C: Page 2, herein

ARTESIAN WATER COMPANY, INC.

Summary of Staff's Rate Base Adjustments
Test Year Ended December 31, 2013

	Average Test Year	Cash Working Capital						Summary of Adjustments
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
1. Plant in service	($34,990,135)							($34,990,135)
2. Intangible assets	0							0
3. Less: Accumulated depreciation	(10,921,068)							(10,921,068)
4. Less: Advances for construction	1,916,098							1,916,098
5. Less: CIAC	(6,100,785)							(6,100,785)
6. Less: Deferred income taxes	(1,838,705)							(1,838,705)
7. Less: Deferred ITC	26,064							26,064
8. Add: Accumulated dep on advances	(70,869)							(70,869)
9. Add: Accumulated dep on CIAC	(1,501,762)							(1,501,762)
10. Materials and supplies	12,691							12,691
11. Working capital	0	($420,000)						(420,000)
12. Taxes paid on CIAC	11,231							11,231
13. Total rate base	($19,620,448)	($420,000)	$0	$0	$0	$0	$0	($20,040,448)

Sources:
Pages 3 & 4, herein

ARTESIAN WATER COMPANY, INC.

Average Rate Base for Test Year
Test Year Ended December 31, 2013

	As Filed			Average		Test Period End
	Test Period	Adjustments	Test Year-End	Rate Base Adjustments	As Adjusted	To Test Year Average Adjustments
(A)	(B)	(C)	(D)	(E)	(F)	(G)
1. Plant in service	$431,789,794	($24,606,862)	$407,182,932	($10,383,273)	$396,799,659	($34,990,135)
2. Intangible assets	140,035	0	140,035	0	140,035	0
3. Less: Accumulated depreciation	96,571,284	(9,255,104)	87,316,180	(1,665,964)	85,650,216	(10,921,068)
4. Less: Advances for construction	11,285,434	900,000	12,185,434	1,016,098	13,201,532	1,916,098
5. Less: CIAC	82,805,854	(3,547,681)	79,258,173	(2,553,104)	76,705,069	(6,100,785)
6. Less: Deferred income taxes	43,101,423	(601,285)	42,500,138	(1,237,420)	41,262,718	(1,838,705)
7. Less: Deferred ITC	585,700	14,646	600,346	11,418	611,764	26,064
8. Add: Accumulated dep on advances	1,895,916	(110,010)	1,785,906	39,141	1,825,047	(70,869)
9. Add: Accumulated dep on CIAC	16,098,900	(840,785)	15,258,115	(660,977)	14,597,138	(1,501,762)
10. Materials and supplies	1,462,553	12,691	1,475,244	0	1,475,244	12,691
11. Working capital	2,535,123	(252,000)	2,283,123	0	2,283,123	(252,000)
12. Taxes paid on CIAC	1,670,190	11,231	1,681,421	0	1,681,421	11,231
13. Total rate base	$221,242,816	($13,296,311)	$207,946,505	($6,576,137)	$201,370,368	($19,872,448)

Sources:
Columns B,C,D: Artesian DLV-2-S
Column E: Peterson workpapers

ARTESIAN WATER COMPANY

Cash Working Capital Adjustment
Test Year Ended December 31, 2013

		Expense	Lead-Lag Days	Dollar Days
	(A)	(B)	(C)	(D)
1.	As filed	$49,615.53	9.21	$457,186.47
	Staff Adjustments			
2.	Payroll	(1,474.71)	8.01	(11,812.43)
3.	Purchased power	10.08	34.49	347.73
4.	Pensions & benefits	(98.27)	(15.62)	1,534.98
5.	Insurance	(13.56)	(169.49)	2,298.28
6.	Outside services	(332.21)	50.94	(16,922.88)
7.	Other	(150.80)	5.74	(865.57)
8.	Payroll taxes	(124.37)	8.10	(1,007.41)
9.	Property taxes	(110.59)	(94.26)	10,424.50
	Eliminate deferred taxes			
10.	SIT	(1,137.83)	(46.58)	53,000.12
11.	FIT	(4,038.27)	36.00	(145,377.72)
	Income taxes - current			
12.	SIT	187.13	(46.58)	(8,716.38)
13.	FIT	667.68	30.00	20,030.37
14.	Interest expense	(575.51)	46.24	(26,611.44)
15.	Adjusted expenses	$42,424.30	7.86	$333,508.62
16.	Revenue lag days		38.49	
17.	Expense lead days		7.86	
18.	Net lag days		30.63	
19.	Expense per day		116.23	
20.	Cash working capital requirement		$3,560	
21.	Cash working capital as filed		3,980	
22.	Adjustment		($420)	

Sources:
Column B, Lines 1,16,21: Artesian workpaper PSCRR-2-0032
Column B, Lines 2-14: Schedule 3, pages 2a and 2b
Column C: Artesian workpapers PSC-RR-2-0031, 033, 0034

ARTESIAN WATER COMPANY, INC.

Pro Forma Operating Income at Present Rates
Test Year Ended December 31, 2013

			Staff	
		As Filed	Adjustments	As Adjusted
	(A)	(B)	(C)	(D)
	Operating revenues			
1.	Water sales	$62,752,316	(1,902,796)	60,849,520
2.	Finance charges	129,073	0	129,073
3.	Miscellaneous revenues	1,416,100	(3,984)	1,412,116
4.	Total operating revenues	$64,297,489	($1,906,780)	$62,390,709
	Operating expenses			
5.	Operation and maintenance	34,152,509	(2,059,474)	32,093,035
6.	Depreciation and amortization	8,901,450	(1,187,727)	7,713,723
	Taxes other than income			
7.	Property	2,844,044	(110,593)	2,733,451
8.	Franchise	53,808	0	53,808
9.	Payroll	1,148,874	(124,371)	1,024,503
10.	Total operating expenses	$47,100,685	($3,482,165)	$43,618,520
	Utility operating income before income taxes	$17,196,804	$1,575,385	$18,772,189
	Income Taxes			
	Current:			
11.	Federal	2,989,219	667,679	3,656,898
12.	State	837,775	187,127	1,024,902
	Deferred			
13.	Federal	548,973	1,926,867	2,475,840
14.	State	153,858	(153,858)	0
15.	Amortization of deferred ITC	(1,444)	0	(1,444)
16.	Total income taxes	$4,528,381	$2,627,815	$7,156,196
17.	**Utility net operating income**	$12,668,423	($1,052,430)	$11,615,993

Sources:
Column B: Artesian Schedule DLV3-2-S
Column C: Page 2, herein

ARTESIAN WATER COMPANY, INC.

Summary of Staff Income Adjustments
Test Year Ended December 31, 2013

		Summary Page 2a		Summary Page 2b				Summary This Page
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Operating revenues								
Water sales		($1,902,796)		$0				($1,902,796)
Finance charges		0		0				$0
Miscellaneous revenues		(3,984)		0				($3,984)
Total operating revenues	$0	($1,906,780)	$0	$0	$0	$0	$0	($1,906,780)
Operating expenses								
Operation and maintenance		(2,059,474)		0				(2,059,474)
Depreciation and amortization		0		(1,187,727)				(1,187,727)
Taxes other than income		0		0				0
Property		0		(110,593)				(110,593)
Franchise		0		0				0
Payroll		(124,371)		0				(124,371)
Total operating expenses	$0	($2,183,845)	$0	($1,298,320)	$0	$0	$0	($3,482,165)
Utility operating income before income taxes	$0	$277,065	$0	$1,298,320	$0	$0	$0	$1,575,385
Income Taxes								
Current:								
Federal		86,006		581,673				667,679
State		24,104		163,023				187,127
Deferred		0		0				0
Federal				1,926,867				1,926,867
State		0		(153,858)				(153,858)
Amortization of deferred ITC		0		0				0
Total income taxes	$0	$110,110	$0	$2,517,705	$0	$0	$0	$2,627,815
Utility net operating income	$0	$166,955	$0	($1,219,385)	$0	$0	$0	($1,052,430)

Sources
Pages 2a and 2b, herein

ARTESIAN WATER COMPANY, INC.
Staff Income Adjustments
Test Year Ended December 31, 2013

(A)	Reverse Revenue Norm Adjustment (B)	Reverse Growth Adjustment (C)	Charitable Donations & Club Dues (D)	Payroll Workers Comp Pensions Payroll Taxes (E)	Purchased Power (F)	Llangollen Well Treatment (G)	Rate Case Expense (H)	Summary This Page (I)
Operating revenues								
Water sales	($1,633,431)	($269,365)						($1,902,796)
Finance charges								0
Miscellaneous revenues	(3,430)	(554)						(3,984)
Total operating revenues	($1,636,861)	($269,919)	$0	$0	$0	$0	$0	($1,906,780)
Operating expenses								
Operation and maintenance			(30,139)	(1,586,548)	10,082	(120,657)	(332,212)	(2,059,474)
Depreciation and amortization								0
Taxes other than income								0
Property								0
Franchise								0
Payroll				(124,371)				(124,371)
Total operating expenses	$0	$0	($30,139)	($1,710,919)	$10,082	($120,657)	($332,212)	($2,183,845)
Utility operating income before income taxes	($1,636,861)	($269,919)	$30,139	$1,710,919	($10,082)	$120,657	$332,212	$277,065
Income Taxes								
Current:								
Federal	(508,114)	(83,788)	9,356	531,103	(3,130)	37,454	103,125	86,006
State	(142,407)	(23,483)	2,622	148,850	(877)	10,497	28,902	24,104
Deferred								
Federal								0
State								0
Amortization of deferred ITC								0
Total income taxes	($650,521)	($107,271)	$11,978	$679,953	($4,007)	$47,951	$132,027	$110,110
Utility net operating income	($986,340)	($162,648)	$18,161	$1,030,966	($6,075)	$72,706	$200,185	$166,955
Staff Witness	Peterson	Peterson	Loper	Teixeira	Driggins	Smith	Woodward	

Sources
Columns B,C: Artesian Schedule DLV 3A-1-S
Column D: Staff Exhibit TML-1, pages 1&2 ($45,825 Donations + $25,314 Dues)
Column E: Staff Exhibit RT-1
Column F: Staff Exhibit LBD-1
Column G: Staff Exhibit JRS-1
Column H: Staff Exhibit AJW-1

ARTESIAN WATER COMPANY, INC.
Staff Income Adjustments - Continued
Test Year Ended December 31, 2013

(A)	Depreciation and Amortization (B)	Deferred Income Taxes (C)	Property Taxes (D)	Interest Syncronization (E)	(F)	(G)	(H)	Summary This Page (I)
Operating revenues								
Water sales								$0
Finance charges								
Miscellaneous revenues								
Total operating revenues	$0	$0	$0	$0	$0	$0	$0	$0
Operating expenses								
Operation and maintenance								0
Depreciation and amortization	(1,187,727)							(1,187,727)
Taxes other than income								0
Property			(110,593)					(110,593)
Franchise								0
Payroll								0
Total operating expenses	($1,187,727)	$0	($110,593)	$0	$0	$0	$0	($1,298,320)
Utility operating income before income taxes	$1,187,727	$0	$110,593	$0	$0	$0	$0	$1,298,320
Income Taxes								
Current:								
Federal	368,694		34,330	178,649				581,673
State	103,332		9,622	50,069				163,023
Deferred								
Federal		1,926,867						1,926,867
State		(153,858)						(153,858)
Amortization of deferred ITC								0
Total income taxes	$472,026	$1,773,009	$43,952	$228,718	$0	$0	$0	$2,517,705
Utility net operating income	$715,701	($1,773,009)	$66,641	($228,718)	$0	$0	$0	($1,219,385)
Staff Witness	Peterson	Peterson	Peterson	Peterson				

Sources
Pages 3 through 6, herein

ARTESIAN WATER COMPANY

Depreciation Expense Adjustment
Test Year Ended December 31, 2013

(A)	(B)
1. Test year depreciation expense per books	$7,726,815
2. Less: Non-utility amortization included in test year	(13,093)
3. Test year depreciation expense as adjusted	$7,713,722
4. Depreciation expense as filed	8,901,449
5. Adjustment to depreciation expense	($1,187,727)
6. State income taxes @ 8.7%	103,332
7. Federal income taxes @ 34%	368,694
8. Total income taxes	$472,026
9. Net income adjustment	$715,701

Sources:
Artesian Schedule DLV-3B-13-S

ARTESIAN WATER COMPANY

Deferred Tax Adjustments
Test Year Ended December 31, 2013

	(A)	(B)
1.	Deferred federal income tax as filed	$548,973
2.	Deferred federal income taxes in test year	2,475,840
3.	Adjustment to deferred federal income taxes	$1,926,867
4.	Deferred state income taxes as filed	$153,858
5.	Deferred state income taxes in test year	0
6.	Adjustment to deferred state income taxes	($153,858)

Sources:
Lines 1,4: Artesian Schedule DLV-3K-S
Line 2,5: Artesian response to PSC-GEN-3K Deferred Taxes

ARTESIAN WATER COMPANY

Property Tax Expense Adjustment
Test Year Ended December 31, 2013

(A)	(B)
1. Latest known propery taxes	$2,733,451
2. Property tax expense as filed	2,844,044
3. Adjustment to property tax expense	($110,593)
4. State income taxes @ 8.7%	9,622
5. Federal income taxes @ 34%	34,330
6. Total income taxes	$43,952
7. Net income adjustment	$66,641

Sources:
Line 1: Artesian's response to Staff request (emailed 9/11/2014)
Line 2: Artesian Schedule DLV-3B-14-S

ARTESIAN WATER COMPANY

Interest Synchronization Adjustment
Test Year Ended December 31, 2013

(A)	(B)
1. Test year average rate base	$201,202,368
2. Weighted cost of debt	2.89%
3. Pro forma interest expense	$5,814,748
4. Interest expense as filed	6,390,255
5. Adjustment to interest expense	($575,507)
Income tax adjustments	
6. Federal income taxes @ 34%	178,649
7. State income taxes @ 8.7%	50,069
8. Total income tax adjustment	228,718
9. Net income adjustment	($228,718)

Sources
Line 1: Schedule 2, page 1
Line 2: Schedule 2, page 3
Line 4: Artesian Schedule DLV-3J-S