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10 IN THE MATTER OF THE APPLICATION OF
 11 ARIZONA WATER COMPANY, AN
 12 ARIZONA CORPORATION, FOR
 13 ADJUSTMENTS TO ITS RATES AND
 CHARGES FOR UTILITY SERVICE
 FURNISHED BY ITS WESTERN GROUP AND
 FOR CERTAIN RELATED APPROVALS.

DOCKET NO. W-01445A-04-0650

**Staff's Notice of Filing Direct
Testimony**

15 The Utilities Division ("Staff") provides this notice that it has filed the direct testimony of
 16 Ronald E. Ludders, Alejandro Ramirez and Lyndon Hammon.

RESPECTFULLY SUBMITTED this 20th day of April 2005.

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24 The original and thirteen (13) copies
 25 of the foregoing were filed this
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**DIRECT
TESTIMONY**

OF

RONALD E. LUDDERS

LYNDON R. HAMMON

ALEJANDRO RAMIREZ

DOCKET NO. W-01445A-04-0650

ARIZONA WATER COMPANY

**IN THE MATTER OF THE APPLICATION OF
ARIZONA WATER COMPANY, AN
ARIZONA CORPORATION, FOR
ADJUSTMENTS TO ITS RATES AND
CHARGES FOR UTILITY SERVICE
FURNISHED BY ITS WESTERN GROUP
AND FOR CERTAIN RELATED
APPROVALS**

APRIL 20, 2005

LUDDERS

BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
KRISTIN K. MAYES
Commissioner

IN THE MATTER OF THE APPLICATION OF) DOCKET NO. W-01445A-04-0650
ARIZONA WATER COMPANY, AN)
ARIZONA CORPORATION, FOR)
ADJUSTMENTS TO ITS RATES AND)
CHARGES FOR UTILITY SERVICE)
FURNISHED BY ITS WESTERN GROUP)
AND FOR CERTAIN RELATED)
APPROVALS)
_____)

DIRECT
TESTIMONY
OF
RONALD E. LUDDERS
PUBLIC UTILITIES ANALYST V
UTILITIES DIVISION
ARIZONA CORPORATION COMMISSION

APRIL 20, 2005

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List of Schedules following the Testimony

1 **INTRODUCTION**

2 **Q. Please state Staff's name, occupation and business address.**

3 A. My name is Ronald E. Ludders. I am a Public Utilities Analyst V with the Utilities
4 Division of the Arizona Corporation Commission ("Commission"). My business address
5 is 1200 West Washington Street, Phoenix, Arizona 85007.

6
7 **Q. How long have you been employed by the Commission?**

8 A. I have been employed by the Commission since December 1989.

9
10 **Q. What are your responsibilities as a Public Utilities Analyst?**

11 A. Among other responsibilities, I review and analyze the accounting books and records of
12 regulated utilities for accuracy, completeness, and reasonableness; interpret rules and
13 regulations, prepare work-papers, schedules, revenue requirements, rate design, staff
14 reports and testimony for rate-making purposes regarding utility applications for rate
15 adjustments, financing and other matters that come before the Commission.

16
17 **Q. Have you previously testified before this Commission?**

18 A. Yes.

19
20 **Q. What is your educational background?**

21 A. I obtained a Bachelor of Science Degree in Business Administration, with majors in
22 Marketing and Accounting from Eastern Illinois University. I possess a minor in Business
23 Management. I have attended National Association of Regulatory Utility Commissioners
24 ("NARUC") classes, rate seminars and numerous in-house training classes and courses
25 regarding statistics, utility auditing, management accounting, rate design, taxation, cash
26 working capital studies, and utility service charges.

1 I have been a member of the National Association of Accountants (now the Institute of
2 Management Accountants) and the Institute of Internal Auditors.

3

4 **Q. Briefly describe Staff's pertinent work experience.**

5 A. Prior to my employment with the Commission, I held several positions with Arizona
6 Public Service, serving as a Project Accountant, Cost Control Analyst and Internal
7 Auditor. I have also served as a Senior Auditor for the State of Arizona – Auditor General
8 and the Governor's Management and Audit Team. Further, I have served as a Revenue
9 Auditor with the Arizona Department of Transportation.

10

11 As a Commission employee I have been assigned water and wastewater rate cases,
12 financing cases, acquisitions and sales of assets, fuel adjustors, Certificates of
13 Convenience and Necessity, interim rate cases, depreciation and tariff matters.

14

15 **Q. Please describe your duties as a Public Utilities Analyst.**

16 A. I am responsible for the examination and verification of financial and statistical
17 information included in assigned utility rate applications. I develop revenue requirements,
18 design rates, prepare written reports, testimony, and schedules that support
19 recommendations presented to the Commission. I am also responsible for testifying at
20 formal hearings on these matters.

21

22 **PURPOSE OF TESTIMONY**

23 **Q. What is the purpose of your testimony in this proceeding?**

24 A. The purpose of my testimony is to present the Commission Utilities Division's ("Staff")
25 analysis and recommendations regarding the Western Group of Arizona Water Company's
26 ("Arizona Water" or "Company") application for a permanent rate increase. I present

1 recommendations in the areas of rate base, operating income, revenue requirement and
2 rate design. Staff witness Alejandro Ramirez presents the cost of capital
3 recommendations. Staff witness Lyndon Hammon presents the engineering analysis and
4 recommendations.

5
6 **Q. What is the basis of Staff's recommendations contained in this testimony?**

7 A. Staff performed a regulatory audit of the Company's records to determine whether
8 sufficient, relevant and reliable evidence exists to support the proposals in Arizona
9 Water's rate application. Staff's regulatory audit consisted of the following: (1)
10 examining and testing Arizona Water's accounting ledgers, reports and supporting
11 documents; (2) tracing recorded amounts to source documents; and, (3) verifying that the
12 Company-applied accounting principles were in accordance with the NARUC Uniform
13 System of Accounts ("USOA").

14
15 **BACKGROUND**

16 **Q. Would you please review the Company's background?**

17 A. Arizona Water is a certificated Arizona public service corporation with headquarters
18 located in Phoenix, Arizona. The Company supplies water to nearly 72,000 customers in
19 eight counties throughout Arizona. The Company is composed of 18 separate water
20 systems located in Ajo Heights ("Ajo"), Apache Junction, Bisbee, Casa Grande, Coolidge,
21 Lakeside, Miami, Oracle, Overgaard, Pinewood, Rimrock, San Manuel, Sedona, Sierra
22 Vista, Stanfield, Superior, White Tanks, and Winkelman. The instant application applies
23 only to the systems that comprise the Western Group (i.e. Casa Grande, Stanfield, White
24 Tanks, Ajo, Coolidge). The Western Group serves over 20,000 customers.

1 **Q. How is Arizona Water authorized to file these five systems as a group?**

2 A. Decision No. 58120, dated December 23, 1992, authorized Arizona Water to make rate
3 filings by group instead of filing all eighteen of its water systems simultaneously. Due to
4 the complexity and time involved in processing eighteen simultaneous rate cases, Decision
5 No. 58120 authorized Arizona Water to "implement the three-group concept..." for future
6 rate proceedings. (See Decision No. 58120, page 39, line 10.) Under the three-group
7 concept recognized in that Decision, the Company's operations would be divided into
8 three groups: Northern Group, Eastern Group, and Western Group based on geographical
9 and existing divisional considerations. On September 8, 2004, Arizona Water Company
10 filed an application for a permanent rate increase for the Western Group. The application
11 was found insufficient on October 8, 2004 and made sufficient on October 18, 2004.

12
13 **Q. What Decision(s) authorized the Western Group's current rates?**

14 A. Arizona Water's Western Group's current rates and charges were authorized in Decision
15 No. 58120, dated December 23, 1992. The service charges were later modified in
16 Decision No. 60512, dated December 3, 1997. The purchased power adjustor mechanisms
17 ("PPAM") were changed in Decision No. 58293, dated May 19, 1993, and Decision No.
18 62755, dated July 25, 2000. The Monitoring Assistance Program ("MAP") surcharge was
19 established in Decision No. 62141, dated December 14, 1999.

20
21 **Q. Please summarize the Company's rate request for the Western Group.**

22 A. The Company proposes rates that produce an increase in gross revenues of \$2,654,063 for
23 a 10.50 percent rate of return on an original cost rate base of \$29,416,615. The
24 Company's proposal would increase revenue by 24.9 percent for the Western Group.

25

1 **Q. What test year was used by the Company in the instant case?**

2 A. Arizona Water's rate filing is based on the historical test year over the twelve months
3 ending December 31, 2003 ("test year").
4

5 **Q. Did the Company prepare Reconstruction Cost New Rate Base Net of Depreciation**
6 **("RCND") schedules?**

7 A. No. The Company did not file RCND schedules. Therefore, Staff used the original cost
8 rate base ("OCLD") as the fair value rate base ("FVRB") for all systems of the Western
9 Group.
10

11 **ORDER OF TESTIMONY**

12 **Q. How is Staff's testimony organized?**

13 A. Staff's testimony is organized to present analysis, recommendations, and supporting
14 schedules for each of the five water systems independently. Staff testimony for the
15 individual systems is presented in the following order: Casa Grande, Stanfield, White
16 Tanks, Ajo Heights and Coolidge.
17

18 **Q. Are there any items or adjustments in Staff's testimony that are common to all**
19 **systems within the Western Group?**

20 A. Yes, there are many items common to all its systems. Staff has chosen to discuss many of
21 these items in this section rather than repeat this information in each individual system.
22 Adjustments made to each system will include the dollar amount of the adjustment and
23 any information specific to that system. The common issues discussed here are: lead-lag
24 analysis, purchased power adjustment mechanism ("PPAM"), purchased water adjustment
25 mechanism ("PWAM"), donations to charity, purchased water expenses, purchased power
26 expenses, rate case expenses, property taxes, and rate design. Additionally, Central

1 Arizona Water ("CAP") issues will be discussed here since they affect three of the five
2 systems.

3

4 Lead-Lag Analysis

5 **Q. What is the purpose of a lead-lag analysis?**

6 A. A lead-lag analysis measures the timing of cash receipts and disbursements. The purpose
7 of a lead-lag study is to estimate the average amount of funds either supplied by
8 shareholders or received in advance from ratepayers for business operations. If cash is
9 received from the ratepayer prior to its use, a reduction is made to the rate base to reflect
10 the actual amount of working capital provided by the ratepayers. When the Company
11 makes payments prior to receiving cash from ratepayers, rate base is increased to reflect
12 the additional funds supplied by shareholders.

13

14 **Q. Does Staff agree with the Company's proposed cash working capital?**

15 A. No. Staff believes the Company's proposed cash working capital calculation has incorrect
16 amounts for revenue and expense lead-lag days.

17

18 **Q. Does Staff agree with the Company's lead-lag analysis?**

19 A. The Company's calculation of revenue lag days could not be verified by Staff.

20

21 **Q. Did Staff prepare a lead-lag analysis?**

22 A. Yes. Staff prepared its own calculation of lead-lag days and applied its results to the
23 study.

24

1 For example, Staff adjusted the Company's use of 2.52 days for Federal and 27.05 for
2 State tax lag days. Staff used 37 days as being more reflective of when the taxes are due,
3 rather than when the Company actually pays its taxes.
4

5 Purchased Power Adjustment Mechanism

6 **Q. Is the Company requesting continuation of its Purchased Power Adjustment**
7 **Mechanism?**

8 A. Yes, on page 23 at line 3 of Ms. Sheryl Hubbard's direct testimony she states, "The
9 Company proposes that the adjustor mechanisms be reset to zero with new base levels
10 established in this proceeding at the current level of expense."
11

12 **Q. Please explain what a PPAM is and how it works.**

13 A. The adjustor was established so the Company could pass the additional or reduced cost of
14 electric power on to its customers thereby recovering or reducing the expense. In the past,
15 the price of purchased power had been somewhat volatile with monthly fluctuations that
16 would increase or decrease the cost of either purchased electric or natural gas power. In
17 the case of Arizona Water, the adjustor mechanism applied to all its 18 systems.
18 However, the Commission eliminated the use of PPAM's and PWAM's in the Eastern
19 Group in Decision No. 66849, dated March 19, 2004.
20

21 Staff supports the elimination of adjustor mechanisms in the Western Group.
22

23 **Q. Would you please explain why the PPAM should be discontinued?**

24 A. Adjustor mechanisms traditionally have been established to mitigate the regulatory lag for
25 volatile, very large expense items (such as purchased coal, oil, and gas in the case of
26 electric utilities and purchased gas for natural gas distribution companies) that may have a

1 negative impact on the financial health of a utility. In Arizona Water's case, purchased
2 power is not volatile and does not represent unusually large level of expense to place the
3 Company in financial jeopardy.

4
5 In his book, Automatic Adjustment Clauses: Theory and Application, Dr. Michael
6 Schmidt states that the automatic adjustment clause is not a substitute for a formal rate
7 case. Dr. Schmidt goes on to say that adjustment mechanisms are strictly a policy option
8 of the regulatory commission to ease unnecessary financial jeopardy of the utility during
9 adverse economic conditions and should not serve as a mechanism to preserve the
10 company's allowed rate of return.

11
12 Of the five systems in the Western group, none have significantly large purchased power
13 bills and none meet the volatility criteria since increases in purchased power costs do not
14 occur frequently. The following chart (Chart REL-1) illustrates the percent of purchased
15 power expenses, by system, to its total operating expense. As can be seen, purchased
16 power does not represent a significant component of each system's operating expense and
17 does not warrant an adjustor mechanism.

18
19 **Purchased Power as a Percent of Total Expense**

| <u>System</u> | <u>Percent</u> |
|---------------|----------------|
| Casa Grande | 0.1202 % |
| Stanfield | 0.1656 % |
| Ajo | 0.0078 % |
| Coolidge | 0.0734 % |
| White Tanks | 0.1184 % |

20
21
22
23
24
25
26 Chart REL-1 - Purchased Power as a Percent of Total Expense

1 Purchased Water Adjustment Mechanism

2 **Q. Is the Company requesting continuation of its Purchased Water Adjustment**
3 **Mechanism?**

4 A. Yes, on page 21 of Mr. Ralph Kennedy's direct testimony he states that "Eliminating the
5 adjustor mechanisms currently in place would increase the variability of operating income
6 and hence the Company's perceived risk." The Company proposes that the adjustor
7 mechanism be continued.

8
9 **Q. Please explain what a PWAM is and how it works.**

10 A. In 1986, the Company was granted a purchased water adjustment mechanism for the Ajo
11 system that would increase or decrease the purchased water expense as the market price
12 fluctuated. The adjustor mechanism would pass the additional or reduced cost of
13 purchased water on to customers, thereby recovering or reducing the expense. In the
14 recently approved Eastern Group Order, the Commission eliminated the PWAM in the
15 San Manuel and Superior systems leaving Ajo as the only Arizona Water system with a
16 purchased water mechanism. As with the PPAM, automatic adjustors should not be a
17 substitute for a formal rate case and should not be used to preserve the Company's
18 allowed rate of return.

19
20 In the case of the Ajo system, while the purchased water expense may be a large, non-
21 volatile expense, there are compensating or offsetting savings in other areas. For instance,
22 the aforementioned Chart REL-1 shows the Ajo purchased power expense to be
23 appreciably lower as a percent of total operating expenses than other systems in the
24 Western Group. Additionally, Ajo has the lowest cost of plant per customer, and the
25 lowest rate base per customer. Therefore, Staff recommends the elimination of the
26 adjustor mechanism altogether.

1 Donations to Charity

2 **Q. Did Staff remove contributions to charities from the Company's income statement?**

3 A. Yes. Company donations to charities are expenses that should be properly borne by
4 shareholders and not ratepayers. Staff has made an adjustment to remove this item from
5 operating expenses.

6
7 Purchased Water Expenses

8 **Q. Did Staff remove any of the Company's proposed purchased water expenses?**

9 A. Yes. The Company had included in its test year expenses pro forma adjustments
10 reflecting CAP municipal & industrial capital charges ("M&I charges") in the test year for
11 CAP water allocations not used or useful. This applied to the Casa Grande, White Tanks,
12 and Coolidge systems. Staff removed the Company's pro forma adjustments.

13
14 Purchased Power Expenses

15 **Q. Did Staff adjust any of the Company's proposed purchased power expenses?**

16 A. Yes. In conjunction with the Company's proposed purchased water adjustment, the
17 Company also reduced purchased power expenses to reflect a corresponding decrease in
18 pumping power needs by its use of CAP water. As above, Staff removed the Company's
19 pro forma adjustments, since the Company will not actually be using CAP water and
20 therefore will not save the pumping power represented by those adjustments.

21
22 Rate Case Expenses

23 **Q. Did the Company increase its proposed Rate Case Expense?**

24 A. Yes. The Company has projected its rate case expenses to be \$253,550 (work paper C2-
25 14a).

26

1 **Q. Does Staff agree with the Company's proposed rate case expense?**

2 A. No. Staff is concerned with the large increase in the Company's rate case costs.

3

4 In the Company's 1992 rate case that included all 18 systems at a cost of \$90,970 or
5 \$5,053 per system. In that case, the Commission allowed rate case expense of \$90,970
6 amortized over three-years or \$30,323 per year.

7

8 In more recent rate applications, the Company's rate case expense for its Eastern Group
9 was \$329,000 for 8 systems and the Commission approved amount was \$250,000 or
10 \$31,250 per system. For the Company's Northern Group the amount allowed was
11 \$43,400 per system. The Company is now proposing to recover rate case expense that
12 will be approximately \$50,710 per system ($\$253,550/5$).

13

14 Due to the aforementioned rate case expenses allowed and the fact that this case has fewer
15 controversial matters, Staff is recommending a normalized rate case expense level of
16 \$225,000 or \$45,000 per system.

17

18 **Q. Does Staff agree with the Company's proposal to amortize rate case expense over
19 three years?**

20 A. Yes. This time period is consistent with the amortization period for the Company's
21 Eastern Group. Staff also believes the Company will make general rate applications more
22 often than in the past due to its need to recover CAP costs (see below), and arsenic or
23 other water treatment costs.

24

1 Deferred Central Arizona Project Charges

2 **Q. Has the Company requested special treatment of its deferred CAP M&I charges?**

3 A. Yes it has. In 1986 the Company entered into a contract with the United States Bureau of
4 Reclamation ("Bureau of Reclamation") and the Central Arizona Water Conservation
5 District ("CAWCD") for annual allocations of CAP water. Since 1993, the Western
6 Group has been deferring CAP Municipal and Industrial capital charges ("M&I charges")
7 on its accounting records. Delivery charges will be expensed as CAP water deliveries are
8 actually made. The Company wishes to include all of its deferred M&I charges in its rate
9 base and to amortize these costs over a ten-year period even though no delivery date for
10 water has been determined. As of the end of the test year, the M&I deferral balance was
11 \$3,525,803 for Casa Grande, \$506,268 for White Tanks and \$1,046,011 for Coolidge.
12 The annual amortization of these amounts would result in an additional expense of
13 \$352,580, \$50,627, and \$104,601, respectively.

14
15 **Q. Does the Company actually receive any of its Western Group CAP allocation?**

16 A. The White Tanks and Coolidge systems receive none of their allocation and the Casa
17 Grande system receives only a non-potable portion of their allocation for use by several
18 golf courses and a near-by power plant. Under the NP-260 tariff, revenues collected have
19 been used to reduce the associated M&I deferral charges and to recover the associated
20 delivery charges. No potable water is being delivered to the Casa Grande system. The
21 Company states that it is currently in the process of evaluating the feasibility of using a yet
22 un-built Casa Grande treatment facility to treat CAP water for Coolidge.

23
24 At the end of the test year, the Western Group, deferred M&I account balance was over
25 \$5,000,000. Staff retains its belief that before rate payers are charged with an expense it
26 must be in service and used and useful and therefore recommends the Company's request

1 for recovery be denied. On two separate occasions the Company requested recovery of its
2 deferred CAP expenses (Decision Number 54392, March 4, 1985, and Decision Number
3 58120, December 23, 1992) and both were denied.

4
5 Staff is concerned with the increasing deferred balance of the CAP M&I costs. In 1993,
6 when M&I charges started escalating significantly, this Commission required all water
7 companies to submit plans for use of CAP water within a five-year window in order to
8 maintain its allotment and the ability to defer M&I charges. Staff notes that the
9 Commission never authorized any company to defer more than five years of accruals and
10 certainly not more than 12 years. The Company has not prepared a comprehensive plan
11 stating conclusively the dates the CAP water will be used and the cost of such application.
12 Without such a plan, the Company will continue using groundwater, while deferring the
13 CAP M&I expenses, leaving future customers with ever increasing CAP costs.

14
15 **Q. What does Staff propose that the Commission allow Arizona Water to treat its CAP**
16 **M&I charges?**

17 **A.** Staff believes that having a CAP allocation and using CAP water is a benefit to the
18 Company and its customers. In addition, using CAP water promotes the State's goal of
19 using renewable water sources and relying less on groundwater. However, Staff believes
20 that having a CAP allotment, but not using the actual water to serve customers benefits no
21 one and does not advance the State's goal of using less groundwater. Therefore, Staff is
22 recommending that the Commission order Arizona Water to submit a detailed plan
23 explaining how it plans to actually use its CAP water to serve its customers and reduce its
24 use of groundwater.

25

1 The plan should be filed in Docket Control by no later than December 31, 2006. The plan
2 must demonstrate that by December 31, 2010, Arizona Water will be using a significant
3 portion of its CAP allocation to serve its customers. If the plan is filed on time and
4 demonstrates this significant use of CAP water, Staff recommends that Arizona Water be
5 allowed to begin recovering it's prudently incurred deferred M&I charges as part of its
6 next rate case for the Western Group. The method of cost recovery can be established in
7 the next rate case. However, if the CAP water use plan submitted by Arizona Water does
8 not comply with the above, Staff recommends that the Company not be allowed to recover
9 its deferred CAP M&I charges and that the Company discontinue deferring such costs.

10
11 If the Company complies with the plan filing as described above and the Commission
12 allows the Company to begin recovering its prudently incurred deferred M&I charges but
13 the Company does not begin using a significant portion of its CAP water by December 31,
14 2010, then the Company should be ordered to discontinue recovering such costs on
15 January 1, 2011, and at the same time also discontinue deferring such costs if it is still
16 doing so.

17
18 Property Tax

19 **Q. How did Staff determine each system's Property Tax expense?**

20 A. Staff used the Arizona Department of Revenue ("ADOR") Valuation Methodology for
21 Water and Sewer Companies. The calculation is based upon Staff's recommended
22 revenue requirement. It is also adjusted to properly reflect the tax treatment for licensed
23 vehicles and construction work in process. Staff obtained the appropriate rates from
24 ADOR.

25

1 Metered Revenue Requirement

2 **Q. How did Staff determine its metered revenue requirement?**

3 A. Once Staff determined a system's revenue requirement, it deducted revenue obtained from
4 other operating revenue. The resulting revenue requirement was the basis for Staff's
5 metered rates.

6
7 **Q. How does Staff's proposed rate structure compare with the Company's?**

8 A. The Company proposed single-tier rates for each of its systems based on customer class
9 distinguished by meter size, in addition to a monthly minimum charge. Staff proposes a
10 three-tier rate structure for the commodity charge. Customer class is distinguished by
11 meter size and the monthly minimum.

12
13 **Q. What are the advantages of a three-tier inverted rate structure over a uniform rate?**

14 A. Flat commodity rates assume there are no increases in costs associated with increases in
15 usage. Under uniform rates there is no incentive to reduce water usage. Because of the
16 ever-increasing demand for a finite resource, innovative and more complex rate structures
17 are being proposed nationwide and internationally in an attempt to properly affect
18 consumer choices.

19
20 **Q. Has Staff reviewed the Company's requested Service Charges?**

21 A. Yes. The Company has proposed Service Charges that are consistent with those
22 recommended in the Northern Group rate case (Decision No. 64282, dated December 28,
23 2001) and the Eastern Group rate case (Decision No. 66849, dated March 19, 2004). Staff
24 recommends approval of the Company proposed Service Charges.

25

1 **Q. Is the Company's Western Group in compliance with the new EPA regulations that**
2 **require water systems to reduce arsenic maximum contaminant levels from 50 parts**
3 **per billion ("ppb") to 10 ppb, effective January 23, 2006?**

4 A. No. However, the Company has been issued an Accounting Order in Decision 67518,
5 dated January 20, 2005, for its Western Group which provides for an arsenic cost recovery
6 mechanism ("ACRM").

7
8 **Q. Does Staff recommend inclusion of the ACRM in this case consistent with those**
9 **approved for the Company's Eastern and Northern Groups?**

10 A. Yes.

11

12 Casa Grande

13 **Q. What adjustments is Staff proposing for the Casa Grande Group?**

14 A. The primary adjustments for Casa Grande include a reduction to rate base to reflect
15 deferral of the CAP M&I amount totaling \$3,525,803; an adjustment to cash working
16 capital as discussed above; adjustments to eliminate PPAM and PWAM amounts as
17 discussed above; adjustments to purchased water and power expenses; revise rate case
18 expense amortization as discussed above; elimination of any charitable contributions; and
19 adjustments for property and income taxes to conform to Staff's recommended revenue
20 requirement.

21

22 Staff has also excluded \$824,324 from the Casa Grande rate base for legal costs incurred
23 by the Company related to condemnation proceedings with the City of Casa Grande.
24 Preservation of the Company's business in Casa Grande benefits the Company's
25 shareholders, not ratepayers. If the condemnation succeeded, the Company's ratepayers
26 would continue to receive service from the new provider.

1 Stanfield

2 **Q. What adjustments is Staff proposing for the Stanfield Group?**

3 A. The primary adjustments for the Stanfield Group are an adjustment to cash working
4 capital as discussed above; adjustments to eliminate PPAM and PWAM amounts as
5 discussed above; revised rate case expense amortization as discussed above, elimination of
6 any charitable contributions; and adjustments for property and income taxes to conform to
7 Staff's recommended revenue requirement.

8
9 White Tanks

10 **Q. What adjustments is Staff proposing for the White Tanks Group?**

11 A. The primary adjustments for White Tanks include a reduction to rate base to reflect
12 deferral of the CAP M&I charges totaling \$506,268; an adjustment to cash working
13 capital as discussed above; adjustments to eliminate PPAM and PWAM amounts as
14 discussed above; adjustments to purchased water and power expenses; revise rate case
15 expense amortization as discussed above; elimination of any charitable contributions; and
16 adjustments for property and income taxes to conform to Staff's recommended revenue
17 requirement.

18
19 Ajo Heights

20 **Q. What adjustments is Staff proposing for the Ajo Heights Group?**

21 A. The primary adjustments for Ajo Heights are an adjustment to cash working capital as
22 discussed above; revise rate case expense amortization as discussed above; elimination of
23 any charitable contributions; and adjustments for property and income taxes to conform to
24 Staff's recommended revenue requirement.

25

1 Coolidge

2 **Q. What adjustments is Staff proposing for the Coolidge Group?**

3 A. The primary adjustments for Coolidge include a reduction to rate base to reflect deferral of
4 the CAP M&I charges totaling \$1,046,011; an adjustment to cash working capital as
5 discussed above; adjustments to eliminate PPAM and PWAM amounts as discussed
6 above; adjustments to purchased water and power expenses; revise rate case expense
7 amortization as discussed above; elimination of any charitable contributions; and
8 adjustments for property and income taxes to conform to Staff's recommended revenue
9 requirement.

10

11 **Q. Does that conclude Staff's discussion on the Western Group?**

12 A. Yes it does.

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19 **AJO - SYSTEM**

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REVENUE REQUIREMENT

| LINE NO. | DESCRIPTION | CASA GRANDE | | STANFIELD | | WHITE TANK | | AJU | | COOLIDGE | | TOTAL WESTERN GROUP | |
|----------|--|---------------------------|-------------------------|---------------------------|-------------------------|---------------------------|-------------------------|---------------------------|-------------------------|---------------------------|-------------------------|---------------------------|-------------------------|
| | | (A) COMPANY ORIGINAL COST | (B) STAFF ORIGINAL COST | (A) COMPANY ORIGINAL COST | (B) STAFF ORIGINAL COST | (A) COMPANY ORIGINAL COST | (B) STAFF ORIGINAL COST | (A) COMPANY ORIGINAL COST | (B) STAFF ORIGINAL COST | (A) COMPANY ORIGINAL COST | (B) STAFF ORIGINAL COST | (A) COMPANY ORIGINAL COST | (B) STAFF ORIGINAL COST |
| 1 | Adjusted Rate Base | \$ 21,996,652 | \$ 17,352,871 | \$ 314,131 x | \$ 310,269 | \$ 2,441,155 x | \$ 1,898,133 | \$ 847,167 x | \$ 837,088 | \$ 3,817,510 | \$ 2,713,030 | \$ 29,416,615 x | \$ 23,111,191 |
| 2 | Adjusted Operating Income (Loss) | \$ 1,180,181 | \$ 1,279,158 | \$ 25,878 | \$ 23,872 | \$ 121,440 | \$ 135,790 | \$ 34,697 | \$ 35,675 | \$ 100,737 | \$ 165,567 | \$ 1,462,933 | \$ 1,640,062 |
| 3 | Current Rate of Return (L2 / L1) | 5.37% | 7.37% | 8.24% | 7.69% | 4.97% | 7.15% | 4.10% | 4.26% | 2.64% | 6.10% | 4.97% | 7.10% |
| 4 | Required Rate of Return | 10.5000% | 8.9000% | 10.5000% x | 8.9000% | 10.5000% | 8.9000% | 10.5000% | 8.9000% | 10.5000% | 8.9000% | 10.5000% | 8.9000% |
| 5 | Required Operating Income (L4 * L1) | \$ 2,309,648 | \$ 1,544,388 | \$ 32,984 | \$ 27,614 | \$ 256,321 | \$ 168,934 | \$ 88,953 | \$ 74,501 | \$ 400,839 | \$ 241,460 | \$ 3,088,745 | \$ 2,056,896 |
| 6 | Operating Income Deficiency (L5 - L2) | \$ 1,129,467 | \$ 265,230 | \$ 7,106 | \$ 3,742 | \$ 134,881 | \$ 33,144 | \$ 54,256 | \$ 38,826 | \$ 300,102 | \$ 75,892 | \$ 1,825,812 | \$ 416,834 |
| 7 | Gross Revenue Conversion Factor | 1.63245 | 1.63246 | 1.63245 x | 1.63246 | 1.63245 | 1.63246 | 1.63245 | 1.63246 | 1.63245 | 1.63246 | 1.63245 | 1.63246 |
| 8 | Increase In Gross Revenue (L7 * L6) | \$ 1,843,799 | \$ 432,977 | \$ 11,600 | \$ 6,108 | \$ 220,187 | \$ 54,107 | \$ 88,569 | \$ 63,382 | \$ 489,901 | \$ 123,891 | \$ 2,854,056 | \$ 680,464 |
| 9 | Adjusted Test Year Revenue | \$ 7,921,381 | \$ 7,921,381 | \$ 131,003 | \$ 131,003 | \$ 783,483 | \$ 783,483 | \$ 412,203 | \$ 412,203 | \$ 1,427,285 | \$ 1,427,285 | \$ 10,675,355 | \$ 10,675,355 |
| 10 | Proposed Annual Revenue (L8 + L9) Note A | \$ 9,765,180 | \$ 8,354,358 | \$ 142,603 | \$ 137,111 | \$ 1,003,670 | \$ 837,590 | \$ 500,772 | \$ 475,585 | \$ 1,917,186 | \$ 1,551,176 | \$ 13,329,411 | \$ 11,355,819 |
| 11 | Require Increase in Revenue (%) (L8/L9) | 23.28% | 5.47% | 8.85% | 4.66% | 28.10% | 6.91% | 21.49% | 15.38% | 34.32% | 8.66% | 24.86% | 6.37% |

Arizona Water Company - Casa Grande
 Docket No. W-01445A-04-0650
 Test Year Ended December 31, 2003

Schedule REL-1

REVENUE REQUIREMENT

| LINE NO. | DESCRIPTION | [A] COMPANY ORIGINAL COST | [B] STAFF ORIGINAL COST |
|----------|--|------------------------------------|----------------------------------|
| 1 | Adjusted Rate Base | \$ 21,996,652 | \$ 17,352,671 |
| 2 | Adjusted Operating Income (Loss) | \$ 1,180,181 | \$ 1,279,158 |
| 3 | Current Rate of Return (L2 / L1) | 5.37% | 7.37% |
| 4 | Required Rate of Return | 10.5000% | 8.9000% |
| 5 | Required Operating Income (L4 * L1) | \$ 2,309,648 | \$ 1,544,388 |
| 6 | Operating Income Deficiency (L5 - L2) | \$ 1,129,467 | \$ 265,230 |
| 7 | Gross Revenue Conversion Factor | 1.63245 | 1.63246 |
| 8 | Increase In Gross Revenue (L7 * L6) | \$ 1,843,799 | \$ 432,977 |
| 9 | Adjusted Test Year Revenue | \$ 7,921,381 | \$ 7,921,381 |
| 10 | Proposed Annual Revenue (L8 + L9) Note A | \$ 9,765,180 | \$ 8,354,358 |
| 11 | Require Increase in Revenue (%) (L8/L9) | 23.28% | 5.47% |

GROSS REVENUE CONVERSION FACTOR

Line
No.

Calculation of Gross Revenue Conversion Factor:

| | | | |
|---|--|-----------|------------------------|
| 1 | Recommended Revenue Increase: | | |
| 2 | Billings | | 1.000000 |
| 3 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 4 | Uncollectible Rate After Income Taxes | 0.14374% | |
| 5 | Total Tax Rate | | <u>38.74262%</u> |
| 6 | Gross Revenue Conversion Factor | | <u><u>1.632456</u></u> |

Calculation of Effective Income Tax Rate:

| | | |
|----|--|-------------------------|
| 7 | Operating Income Before Taxes (Arizona Taxable Income) | 100.00000% |
| 8 | Arizona State Income Tax Rate | <u>6.96800%</u> |
| 9 | Federal Taxable Income (L5 - L6) | 93.03200% |
| 10 | Applicable Federal Income Tax Rate (Line 32) | <u>34.00000%</u> |
| 11 | Effective Federal Income Tax Rate (L7 x L8) | <u>31.63088%</u> |
| 12 | Combined Federal and State Income Tax Rate (L6 +L9) | <u><u>38.59888%</u></u> |

Calculation of Uncollectible Rate After Income Taxes:

| | | | |
|----|--|-----------|------------------------|
| 13 | Uncollectible Rate | | 0.23410% |
| 14 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 15 | 1 minus Combined Federal and State Income Tax Rate | | <u>61.40112%</u> |
| 16 | Uncollectible Rate After Income Taxes | | <u><u>0.14374%</u></u> |

Revenue Reconciliation:

| | | | |
|----|--|-------------------|----------|
| 17 | Recommended Increase in Revenue (from REL-1, L8) | \$ 432,977 | |
| 18 | Uncollectible Rate | 0.234100% | |
| 19 | Required Increase in Revenue to Provide for Uncollectibles | | \$ 1,014 |
| 20 | Recommended Increase in Revenue (from REL-1,L8) | \$ 432,977 | |
| 21 | Required Increase in Revenue to Provide for Uncollectibles | 1,014 | |
| 22 | Incremental Taxable Income | \$ 431,963 | |
| 23 | Combined Federal and State Income Tax Rate | <u>38.59888%</u> | |
| 24 | Required Increase in Revenue to Provide for Income Taxes | | 166,733 |
| 25 | Required Operating Income | \$ 1,544,388 | |
| 26 | Adjusted Test Year Operating Income (Loss) | <u>1,279,158</u> | |
| 27 | Required Increase in Operating Income | | 265,230 |
| 28 | Total Required Increase In Revenue | <u>\$ 432,977</u> | |

Calculation of Income Tax:

| | Test Year | STAFF Recommended |
|----|---|----------------------|
| 29 | Revenue | \$ 7,921,381 |
| 30 | Less: Operating Expenses Excluding Income Taxes | \$ 6,078,087 |
| 31 | Less: Synchronized Interest | \$ 381,759 |
| 32 | Arizona Taxable Income | \$ 1,461,535 |
| 33 | Arizona State Income Tax Rate | 6.968% |
| 34 | Arizona Income Tax | \$ 101,840 |
| 35 | Federal Taxable Income | \$ 1,359,695 |
| 36 | Federal Income Tax @ 34% | \$ 462,296 |
| 37 | Combined Federal and State Income Tax | <u>\$ 564,136</u> |
| | | \$ 166,733 |

Calculation of Interest Synchronization:

| | | |
|----|-------------------------------|-------------------|
| 38 | Rate Base | \$ 17,352,671 |
| 39 | Weighted Average Cost of Debt | 2.200% |
| 40 | Synchronized Interest | <u>\$ 381,759</u> |

RATE BASE - ORIGINAL COST

| LINE NO. | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENTS | (C) STAFF AS ADJUSTED |
|------------------|---|-----------------------------|--------------------------------|
| 1 | Plant in Service | \$ 51,556,199 | \$ 47,206,022 |
| 2 | Less: Accumulated Depreciation | (12,072,217) | (12,072,217) |
| 3 | Net Plant in Service | <u>\$ 39,483,982</u> x | <u>\$ 35,133,805</u> |
| <i>LESS:</i> | | | |
| 4 | Advances in Aid of Construction (AIAC) | (8,891,444) | (8,891,444) |
| 5 | Contributions in Aid of Construction (CIAC) | \$ (7,754,812) | \$ (7,754,812) |
| 6 | Less: Accumulated Amortization | <u>1,348,820</u> | <u>1,348,820</u> |
| 7 | Net CIAC | (6,405,992) | (6,405,992) |
| 8 | Total Advances and Contributions | (15,297,436) | (15,297,436) |
| 9 | Customer Deposits | - | - |
| 10 | Meter Advances | - | - |
| 11 | Deferred Income Tax Credits | (3,387,966) | (3,387,966) |
| <i>ADD:</i> | | | |
| 12 | Working Capital | 250,254 | (43,550) x |
| 13 | Phoenix Office Allocation | 930,536 | 930,536 |
| 14 | Meter Shop Allocation | 17,282 | 17,282 |
| 15 | | - | - |
| 16 | | - | - |
| 17 | | - | - |
| 18 | Total Rate Base | <u>\$ 21,996,652</u> | <u>\$ 17,352,671</u> |

SUMMARY OF RATE BASE ADJUSTMENTS

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ No.1 | [C] ADJ No. 2 | [D] ADJ No. 3 | [E] STAFF ADJUSTED |
|---------------------------------|--|----------------------------|---------------------|-----------------------|---------------------|--------------------------|
| <u>PLANT IN SERVICE:</u> | | | | | | |
| 1 | Organization | \$ - | \$ - | \$ - | \$ - | \$ - |
| 2 | Franchises | 3,018 | - | - | - | 3,018 |
| 3 | Other Intangibles | 824,374 | (824,374) | - | - | - |
| 4 | Water Rights | 67,192 | - | - | - | 67,192 |
| 5 | Other Source of Supply Land | 93,865 | - | - | - | 93,865 |
| 6 | Wells | 2,711,417 | - | - | - | 2,711,417 |
| 7 | Pumping Plant Land | 6,013 | - | - | - | 6,013 |
| 8 | Pumping Plant Structures & Improvements | 91,607 | - | - | - | 91,607 |
| 9 | Electric Pumping Equipment | 2,394,587 | - | - | - | 2,394,587 |
| 10 | Gas Engine Equipment | - | - | - | - | - |
| 11 | Water Treatment Land | - | - | - | - | - |
| 12 | Water Treatment Structures & Improvmnts | 70,538 | - | - | - | 70,538 |
| 13 | Water Treatment Equipment | 133,666 | - | - | - | 133,666 |
| 14 | Transmission and Distribution Land | 64,886 | - | - | - | 64,886 |
| 15 | Storage Tanks | 1,699,748 | - | - | - | 1,699,748 |
| 16 | Transmission and Distribution Mains | 25,581,627 | - | - | - | 25,581,627 |
| 17 | Fire Sprinkler Taps | 849,998 | - | - | - | 849,998 |
| 18 | Services | 8,672,173 | - | - | - | 8,672,173 |
| 19 | Meters | 1,205,217 | - | - | - | 1,205,217 |
| 20 | Hydrants | 2,390,623 | - | - | - | 2,390,623 |
| 21 | General Plant Land | 8,772 | - | - | - | 8,772 |
| 22 | General Plant Structures | 368,806 | - | - | - | 368,806 |
| 23 | Leasehold Improvements | - | - | - | - | - |
| 24 | Office Furniture and Improvements | 161,506 | - | - | - | 161,506 |
| 25 | Warehouse Equipment | 12,913 | - | - | - | 12,913 |
| 26 | Tools, Shop and Garage Equipment | 130,579 | - | - | - | 130,579 |
| 27 | Laboratory Equipment | 5,253 | - | - | - | 5,253 |
| 28 | Power Operated Equipment | 59,810 | - | - | - | 59,810 |
| 29 | Communication Equipment | 376,139 | - | - | - | 376,139 |
| 30 | Miscellaneous Equipment | 46,069 | - | - | - | 46,069 |
| 31 | Total Plant in Service - Actual | 48,030,396 x | (824,374) | - | - | 47,206,022 |
| 32 | CAP Pro-forma Adjustment - Post TY Plant | 3,525,803 | - | (3,525,803) | - | - |
| 33 | Accumulated Depreciation, Retired Plant | - | - | - | - | - |
| 34 | Total Plant in Service - Adjusted | \$ 51,556,199 x | \$ (824,374) | \$ (3,525,803) | \$ - | \$ 47,206,022 |
| 35 | Less: Accumulated Depreciation - Actual | \$ (12,087,978) x | - | - | - | (12,087,978) |
| 36 | Less: Accumulated Depreciation - Post TY | 15,761 x | - | - | - | 15,761 |
| 37 | Less: Accumulated Depreciation - 12 Mos TY | - | - | - | - | - |
| 38 | Less: Accumulated Depreciation - Retired Plant | - | - | - | - | - |
| 39 | Total Accumulated Depreciation - Adjusted | \$ (12,072,217) x | \$ - | \$ - | \$ - | \$ (12,072,217) |
| 40 | Plus: Construction Work In Progress | - | - | - | - | - |
| 41 | Net Plant in Service | <u>\$ 39,483,982 x</u> | <u>\$ (824,374)</u> | <u>\$ (3,525,803)</u> | <u>\$ -</u> | <u>\$ 35,133,805</u> |
| <u>LESS:</u> | | | | | | |
| 42 | Advances in Aid of Construction (AIAC) | \$ (8,891,444) x | \$ - | \$ - | \$ - | (8,891,444) |
| 43 | Contributions in Aid of Construction (CIAC) | (7,754,812) x | - | - | - | (7,754,812) |
| 44 | Less: Accumulated Amortization | 1,348,820 x | - | - | - | 1,348,820 |
| 45 | Net CIAC (L25 - L26) | (6,405,992) x | - | - | - | (6,405,992) |
| 46 | Total Advances and Contributions | (15,297,436) x | - | - | - | (15,297,436) |
| 47 | Customer Deposits | - | - | - | - | - |
| 48 | Meter Advances | - | - | - | - | - |
| 49 | Deferred Income Tax Credits | (3,387,966) x | - | - | - | (3,387,966) |
| <u>ADD:</u> | | | | | | |
| 50 | Working Capital Allowance | 250,254 x | - | - | (293,804) | (43,550) |
| 51 | Phoenix Office Allocation | 930,536 x | - | - | - | 930,536 |
| 52 | Meter Shop Allocation | 17,282 x | - | - | - | 17,282 |
| 53 | Projected Capital Expenditures | - | - | - | - | - |
| 54 | Deferred Debits | - | - | - | - | - |
| 55 | Other Additions | - | - | - | - | - |
| 56 | Total Rate Base | <u>\$ 21,996,652</u> | <u>\$ (824,374)</u> | <u>\$ (3,525,803)</u> | <u>\$ (293,804)</u> | <u>\$ 17,352,671</u> |

RATE BASE ADJUSTMENT NO. 1 - PLANT IN SERVICE

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|----------|---------------------------------|-------------------|---------------------|-------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Actual Test Year Plant | \$ 824,374 | \$ (824,374) | \$ - |
| 2 | Post-Test Year Plant | \$ - | \$ - | \$ - |
| 3 | Post Test Year Retired Plant | \$ - | \$ - | \$ - |
| 4 | Adjusted Test Year Plant | \$ 824,374 | \$ (824,374) | \$ - |

To eliminate \$824,374 in expenses associated with the condemnation of the Casa Grande Water System. Staff believes the costs benefit shareholders and not ratepayers. These costs were incurred as follows:

| | | |
|------|----|----------------|
| 2000 | \$ | 427,432 |
| 2001 | \$ | 224,505 |
| 2002 | \$ | 114,163 |
| 2003 | \$ | 58,274 |
| | \$ | <u>824,374</u> |

RATE BASE ADJUSTMENT NO. 2 - DEFERRED CAP M&I CHARGES

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|----------|--|---------------------|-----------------------|-------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Deferred CAP M&I Charges | \$ 3,525,803 | \$ (3,525,803) | \$ - |
| 2 | Accumulated Depreciation, Post-Test Year Plant | \$ - | \$ - | \$ - |
| 3 | Accumulated Depreciation, Test Year Plant | \$ - | \$ - | \$ - |
| 4 | Accumulated Deprec, Test Year Retired Plant | \$ - | \$ - | \$ - |
| | | <u>\$ 3,525,803</u> | <u>\$ (3,525,803)</u> | <u>\$ -</u> |

To eliminated deferred M&I charges because the CAP water is not being delivered and therefore not and useful.

Adjustments:

- Column [A]: Company Schedule
- Column [B]: Testimony (REL)
- Column [C]: Column (A) plus or minus column (B)

Arizona Water Company - Casa Grande
Docket No. W-01445A-04-0650
Test Year Ended December 31, 2003

Schedule REL- 7

OPERATING INCOME ADJUSTMENT NO. 3 - CASH WORKING CAPITAL

| LINE NO. | DESCRIPTION | (A) | (B) | (C) |
|-------------|----------------------------------|---------------------|---------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENT | STAFF AS ADJUSTED |
| 1 | Cash Working Capital | \$ (34,386) | \$ (293,804) | \$ (328,190) |
| 2 | Materials and Supplies Inventory | 62,214 | - | 62,214 |
| 3 | Required Bank Balances | 134,829 | - | 134,829 |
| 4 | Prepayments and Special Deposits | 87,597 | - | 87,597 |
| 5 | Total | <u>\$ 250,254</u> | <u>\$ (293,804)</u> | <u>\$ (43,550)</u> |

OPERATING INCOME - TEST YEAR AND STAFF PROPOSED

| LINE NO. | DESCRIPTION | [A] COMPANY TEST YEAR AS FILED | [B] STAFF TEST YEAR ADJUSTMENTS | [C] STAFF TEST YEAR AS ADJUSTED | [D] STAFF PROPOSED CHANGES | [E] STAFF RECOMMENDED |
|----------------------------|--|---|--|---|-------------------------------------|-----------------------------|
| REVENUES: | | | | | | |
| 1 | Total Operating Revenues | \$ 7,921,381 | \$ - | \$ 7,921,381 | \$ 432,977 | \$ 8,354,358 |
| EXPENSES: | | | | | | |
| Source of Supply Expenses: | | | | | | |
| 2 | Purchased Water | \$ 498,013 | \$ (159,449) | \$ 338,564 | \$ - | \$ 338,564 |
| 3 | Other | 45,935 | - | 45,935 | - | 45,935 |
| Pumping Expenses: | | | | | | |
| 4 | Purchased Power | 810,343 | 1,467 | 811,810 | - | 811,810 |
| 5 | Purchased Gas | - | - | - | - | - |
| 6 | Other | 286,696 | - | 286,696 | - | 286,696 |
| 7 | Water Treatment Expenses | 187,995 | - | 187,995 | - | 187,995 |
| 8 | Transmission and Distribution Expenses | 786,616 | - | 786,616 | - | 786,616 |
| 9 | Customer Account Expenses | 604,959 | - | 604,959 | 1,014 | 605,973 |
| 10 | Sales Expenses | 2,962 | - | 2,962 | - | 2,962 |
| 11 | Administrative and General Expenses | 952,718 | (20,495) | 932,223 | - | 932,223 |
| 12 | Total Operation and Maintenance | \$ 4,176,237 | (178,477) | 3,997,760 | 1,014 | 3,998,774 |
| 13 | Depreciation and Amortization | 1,368,007 | - | 1,368,007 | - | 1,368,007 |
| 15 | Ad Valorem (Property) | 612,639 | 22,930 | 635,569 | - | 635,569 |
| Taxes: | | | | | | |
| 14 | Federal & State Income Tax | 507,566 | 56,570 | 564,136 | 166,733 | 730,869 |
| 16 | Other | 76,751 | - | 76,751 | - | 76,751 |
| 17 | Total Operating Expenses | \$ 6,741,200 | \$ (98,977) | \$ 6,642,223 | \$ 167,746 | \$ 6,809,970 |
| 18 | Operating Income (Loss) | \$ 1,180,181 | \$ 98,977 | \$ 1,279,158 | \$ 265,230 | \$ 1,544,388 |

Arizona Water Company - Casa Grande
 Docket No. W-01445A-04-0650
 Test Year Ended December 31, 2003

SUMMARY OF OPERATING INCOME ADJUSTMENTS - TEST YEAR

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ #1 | [C] ADJ #2 | [D] ADJ #3 | [E] ADJ #4 | [F] ADJ #5 | [G] ADJ #6 | [H] ADJ #7 | [I] STAFF ADJUSTED |
|----------|--|-------------------------|--------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|-----------------------|
| 1 | REVENUES: Total Operating Revenues | \$ 7,921,381 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 7,921,381 |
| | EXPENSES: | | | | | | | | | |
| | Source of Supply Expenses: | | | | | | | | | |
| 2 | Purchased Water | \$ 498,013 | \$(159,449) | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 338,564 |
| 3 | Other | 45,935 | - | - | - | - | - | - | - | 45,935 |
| 4 | Pumping Expenses: | | | | | | | | | |
| 5 | Purchased Power | 810,343 | - | 1,467 | - | - | - | - | - | 811,810 |
| 6 | Purchased Gas | - | - | - | - | - | - | - | - | - |
| 7 | Other | 286,696 | - | - | - | - | - | - | - | 286,696 |
| 8 | Water Treatment Expenses | 187,995 | - | - | - | - | - | - | - | 187,995 |
| 9 | Transmission and Distribution Expenses | 786,616 | - | - | - | - | - | - | - | 786,616 |
| 10 | Customer Account Expenses | 604,959 | - | - | - | - | - | - | - | 604,959 |
| 11 | Sales Expenses | 2,962 | - | - | - | - | - | - | - | 2,962 |
| 12 | Administrative and General Expenses | 952,718 | - | - | (6,954) | (13,541) | - | - | - | 932,223 |
| 13 | Total Operation and Maintenance | 4,176,237 | (159,449) | 1,467 | (6,954) | (13,541) | - | - | - | 3,997,760 |
| 14 | Depreciation and Amortization | 1,368,007 | - | - | - | - | 22,930 | - | - | 1,368,007 |
| 15 | Ad Valorem (Property) | 612,639 | - | - | - | - | - | - | - | 635,569 |
| 16 | Taxes: | | | | | | | | | |
| 17 | Federal & State Income Tax | 507,566 | - | - | - | - | - | 23,276 | 33,294 | 564,136 |
| 18 | Other | 76,751 | - | - | - | - | - | - | - | 76,751 |
| | Total Operating Expenses | \$ 6,741,200 | \$(159,449) | \$ 1,467 | \$ (6,954) | \$ (13,541) | \$ 22,930 | \$ 23,276 | \$ 33,294 | \$ 6,642,223 |
| | Operating Income (Loss) | \$ 1,180,181 x | \$ 159,449 | \$ (1,467) | \$ 6,954 | \$ 13,541 | \$ (22,930) | \$ (23,276) | \$ (33,294) | \$ 1,279,158 |

Arizona Water Company - Casa Grande
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Schedule REL- 10

OPERATING INCOME ADJUSTMENT NO. 1 - PURCHASED WATER EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|-------------|-------------------------|----------------------------|----------------------------|-----------------------------|
| 1 | Purchased Water Expense | \$ 498,013 | \$ (159,449) | \$ 338,564 |

Arizona Water Company - Casa Grande
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Test Year Ended December 31, 2003

Schedule REL-11

OPERATING INCOME ADJUSTMENT NO. 2 - PURCHASED PUMPING POWER EXPENSE

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|-------------|-------------------------|---------------------|----------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Purchased Pumping Power | \$ 810,343 | \$ 1,467 | \$ 811,810 |

OPERATING INCOME ADJUSTMENT NO. 3 - RATE CASE EXPENSE

| LINE NO. | DESCRIPTION | (A) | (B) | (C) |
|----------|--|------------------|------------------|-------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENT | STAFF AS ADJUSTED |
| 1 | Rate Case Expense for Eastern Group | \$ 253,550 | \$ (28,550) | \$ 225,000 |
| 2 | Allocation Factor | 0.73070 | | 0.73070 |
| 3 | Annual Rate Case Expense for Eastern Group | \$ 185,269 | \$ (20,861) | \$ 164,408 |
| 4 | Number of Years Amortized | 3 | | 3 |
| 5 | Annual Rate Case Expense | \$ 61,756 | \$ (6,954) | \$ 54,803 |

Arizona Water Company - Casa Grande
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Schedule REL-13

OPERATING INCOME ADJUSTMENT NO. 4 - CHARITABLE CONTRIBUTIONS

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|-------------|---|---------------------|----------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Charitable Contributions, Gifts, Awards, Etc. | \$ 16,695 | \$ (13,541) | \$ 3,154 |

OPERATING INCOME ADJUSTMENT NO. 5 - PROPERTY TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) | (B) | (C) |
|----------|--|-------------------|------------------|---------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENT | STAFF AS ADJUSTMENT |
| 1 | 2001 Annual Gross Revenues | | | \$ 8,247,209 |
| 2 | 2002 Annual Gross Revenues | | | \$ 7,921,381 |
| 3 | 2003 Annual Gross Revenues | | | \$ 8,849,491 |
| 4 | Plus Staff's Recommended Increase | | | \$ 432,977 |
| 5 | Subtotal (Lines 1 + 2 + 3 + 4) | | | \$ 25,451,058 |
| 6 | Three Year Average Calculation | | | 3 |
| 7 | Three Year Average (Line 5 / Line 6) | | | \$ 8,483,686 |
| 8 | Department of Revenue Multiplier | | | 2 |
| 9 | Revenue Base Value (Line 7 x Line 8) | | | \$ 16,967,372 |
| 10 | Plus: 10% of 2001 CWIP | | | 14,715 |
| 11 | Less: Net Book Vaule of Leased Vehicles (See Note A Below) | | | \$ 201,384 |
| 12 | Full Cash Value (Line 9 + Line 10 - Line 11) | | | \$ 16,780,703 |
| 13 | Assessment Ratio | | | 0.25 |
| 14 | Assessed Value (Line 12 x Line 13) | | | \$ 4,195,176 |
| 15 | Composite Property Tax Rate (See Note B Below) | | | 0.1515 |
| 16 | Staff Proposed Property Tax Expense (Line 14 x Line 15) | \$ 612,639 | \$ 22,930 | \$ 635,569 |

Note A: Net Book Value of Licensed Vehicles provided by Arizona Water.

Note B: Property tax rate provided by Arizona Dept. of Revenue.

OPERATING INCOME ADJUSTMENT NO. 6 and 7 - INCOME TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|----------------------|----------------------------|----------------------------|-----------------------------|
| 1 | Federal Income Taxes | \$ 439,020 | \$ 23,276 | \$ 462,296 |
| 2 | State Income Taxes | 68,546 | 33,294 | 101,840 |
| 3 | Total Income Taxes | <u>\$ 507,566</u> | <u>\$ 56,570</u> | <u>\$ 564,136</u> |

REVENUE REQUIREMENT

| <u>LINE NO.</u> | <u>DESCRIPTION</u> | <u>[A] COMPANY ORIGINAL COST</u> | <u>[B] STAFF ORIGINAL COST</u> |
|-----------------|--|--|--|
| 1 | Adjusted Rate Base | \$ 314,131 x | \$ 310,269 |
| 2 | Adjusted Operating Income (Loss) | \$ 25,878 | \$ 23,872 |
| 3 | Current Rate of Return (L2 / L1) | 8.24% | 7.69% |
| 4 | Required Rate of Return | 10.5000% x | 8.9000% |
| 5 | Required Operating Income (L4 * L1) | \$ 32,984 | \$ 27,614 |
| 6 | Operating Income Deficiency (L5 - L2) | \$ 7,106 | \$ 3,742 |
| 7 | Gross Revenue Conversion Factor | 1.63245 x | 1.63246 |
| 8 | Increase In Gross Revenue (L7 * L6) | \$ 11,600 | \$ 6,108 |
| 9 | Adjusted Test Year Revenue | \$ 131,003 | \$ 131,003 |
| 10 | Proposed Annual Revenue (L8 + L9) Note A | \$ 142,603 | \$ 137,111 |
| 11 | Require Increase in Revenue (%) (L8/L9) | 8.85% | 4.66% |

GROSS REVENUE CONVERSION FACTOR

Line
No.

Calculation of Gross Revenue Conversion Factor:

| | | | |
|---|--|-----------|-----------------|
| 1 | Recommended Revenue Increase: | | 1.000000 |
| 2 | Billings | | |
| 3 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 4 | Uncollectible Rate After Income Taxes | 0.14374% | |
| 5 | Total Tax Rate | | 38.74262% |
| 6 | Gross Revenue Conversion Factor | | <u>1.632456</u> |

Calculation of Effective Income Tax Rate:

| | | |
|----|--|------------------|
| 7 | Operating Income Before Taxes (Arizona Taxable Income) | 100.00000% |
| 8 | Arizona State Income Tax Rate | 6.96800% |
| 9 | Federal Taxable Income (L5 - L6) | 93.03200% |
| 10 | Applicable Federal Income Tax Rate (Line 32) | 34.00000% |
| 11 | Effective Federal Income Tax Rate (L7 x L8) | 31.63088% |
| 12 | Combined Federal and State Income Tax Rate (L6 +L9) | <u>38.59888%</u> |

Calculation of Uncollectible Rate After Income Taxes:

| | | | |
|----|--|-----------|-----------------|
| 13 | Uncollectible Rate | | 0.23410% |
| 14 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 15 | 1 minus Combined Federal and State Income Tax Rate | | 61.40112% |
| 16 | Uncollectible Rate After Income Taxes | | <u>0.14374%</u> |

Revenue Reconciliation:

| | | | |
|----|--|-----------|-----------------|
| 17 | Recommended Increase in Revenue (from REL-1, L8) | \$ 6,108 | |
| 18 | Uncollectible Rate | 0.234100% | |
| 19 | Required Increase in Revenue to Provide for Uncollectibles | | \$ 14 |
| 20 | Recommended Increase in Revenue (from REL-1,L8) | \$ 6,108 | |
| 21 | Required Increase in Revenue to Provide for Uncollectibles | 14 | |
| 22 | Incremental Taxable Income | \$ 6,094 | |
| 23 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 24 | Required Increase in Revenue to Provide for Income Taxes | | 2,352 |
| 25 | Required Operating Income | \$ 27,614 | |
| 26 | Adjusted Test Year Operating Income (Loss) | 23,872 | |
| 27 | Required Increase in Operating Income | | 3,742 |
| 28 | Total Required Increase In Revenue | | <u>\$ 6,108</u> |

Calculation of Income Tax:

| | Test Year | | STAFF Recommended |
|----|---|------------------|----------------------|
| 29 | Revenue | \$ 131,003 | \$ 137,111 |
| 30 | Less: Operating Expenses Excluding Income Taxes | \$ 96,415 | \$ 96,429 |
| 31 | Less: Synchronized Interest | \$ 6,826 | \$ 6,826 |
| 32 | Arizona Taxable Income | \$ 27,762 | \$ 33,856 |
| 33 | Arizona State Income Tax Rate | 6.968% | 6.968% |
| 34 | Arizona Income Tax | \$ 1,934 | \$ 2,359 |
| 35 | Federal Taxable Income | \$ 25,828 | \$ 31,497 |
| 36 | Federal Income Tax @ 34% | \$ 8,781 | \$ 10,709 |
| 37 | Combined Federal and State Income Tax | <u>\$ 10,716</u> | <u>\$ 13,068</u> |
| | | | \$ 2,352 |

Calculation of Interest Synchronization:

| | | |
|----|-------------------------------|-----------------|
| 38 | Rate Base | \$ 310,269 |
| 39 | Weighted Average Cost of Debt | 2.200% |
| 40 | Synchronized Interest | <u>\$ 6,826</u> |

RATE BASE - ORIGINAL COST

| LINE NO. | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENTS | (C) STAFF AS ADJUSTED |
|--------------|---|-----------------------------|--------------------------------|
| 1 | Plant in Service | \$ 602,560 | \$ 602,560 |
| 2 | Less: Accumulated Depreciation | (195,716) | (195,716) |
| 3 | Net Plant in Service | <u>\$ 406,844</u> x | <u>\$ 406,844</u> |
| <u>LESS:</u> | | | |
| 4 | Advances in Aid of Construction (AIAC) | - | - |
| 5 | Contributions in Aid of Construction (CIAC) | \$ (49,164) | \$ (49,164) |
| 6 | Less: Accumulated Amortization | 7,813 | 7,813 |
| 7 | Net CIAC | <u>(41,351)</u> | <u>(41,351)</u> |
| 8 | Total Advances and Contributions | (41,351) | (41,351) |
| 9 | Customer Deposits | - | - |
| 10 | Meter Advances | - | - |
| 11 | Deferred Income Tax Credits | (62,528) x | (62,528) |
| <u>ADD:</u> | | | |
| 12 | Working Capital | (3,029) x | (3,862) |
| 13 | Phoenix Office Allocation | 13,936 x | 13,936 |
| 14 | Meter Shop Allocation | 259 x | 259 |
| 15 | | - | - |
| 16 | | - | - |
| 17 | | - | - |
| 18 | Total Rate Base | <u>\$ 314,131</u> x | <u>\$ 310,269</u> |

SUMMARY OF RATE BASE ADJUSTMENTS

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ No.1 | [C] STAFF ADJUSTED |
|--------------------------|--|----------------------------|-----------------|--------------------------|
| <u>PLANT IN SERVICE:</u> | | | | |
| 1 | Organization | \$ - | \$ - | \$ - |
| 2 | Franchises | - | - | - |
| 3 | Other Intangibles | - | - | - |
| 4 | Water Rights | 1,128 | - | 1,128 |
| 5 | Other Source of Supply Land | 600 | - | 600 |
| 6 | Wells | 106,975 | - | 106,975 |
| 7 | Pumping Plant Land | 200 | - | 200 |
| 8 | Pumping Plant Structures & Improvements | 1,243 | - | 1,243 |
| 9 | Electric Pumping Equipment | 190,368 | - | 190,368 |
| 10 | Gas Engine Equipment | - | - | - |
| 11 | Water Treatment Land | - | - | - |
| 12 | Water Treatment Structures & Improvmts | 6,778 | - | 6,778 |
| 13 | Water Treatment Equipment | 13,763 | - | 13,763 |
| 14 | Transmission and Distribution Land | - | - | - |
| 15 | Storage Tanks | 40,876 | - | 40,876 |
| 16 | Transmission and Distribution Mains | 99,139 | - | 99,139 |
| 17 | Fire Sprinkler Taps | 268 | - | 268 |
| 18 | Services | 35,888 | - | 35,888 |
| 19 | Meters | 17,035 | - | 17,035 |
| 20 | Hydrants | 9,243 | - | 9,243 |
| 21 | General Plant Land | - | - | - |
| 22 | General Plant Structures | 1,312 | - | 1,312 |
| 23 | Leasehold Improvements | - | - | - |
| 24 | Office Furniture and Improvements | - | - | - |
| 25 | Warehouse Equipment | - | - | - |
| 26 | Tools, Shop and Garage Equipment | 534 | - | 534 |
| 27 | Laboratory Equipment | - | - | - |
| 28 | Power Operated Equipment | - | - | - |
| 29 | Communication Equipment | 76,676 | - | 76,676 |
| 30 | Miscellaneous Equipment | 534 | - | 534 |
| 31 | Total Plant in Service - Actual | 602,560 x | - | 602,560 |
| 32 | Pro-forma Adjustment - Post TY Plant | - | - | - |
| 33 | Accumulated Depreciation, Retired Plant | - | - | - |
| 34 | Total Plant in Service - Adjusted | \$ 602,560 x | \$ - | \$ 602,560 |
| 35 | Less: Accumulated Depreciation - Actual | \$ (195,716) x | - | (195,716) |
| 36 | Less: Accumulated Depreciation - Post TY | - | - | - |
| 37 | Less: Accumulated Depreciation - 12 Mos TY | - | - | - |
| 38 | Less: Accumulated Depreciation - Retired Plant | - | - | - |
| 39 | Total Accumulated Depreciation - Adjusted | \$ (195,716) x | \$ - | \$ (195,716) |
| 40 | Plus: Construction Work In Progress | - | - | - |
| 41 | Net Plant in Service | \$ 406,844 x | \$ - | \$ 406,844 |
| <u>LESS:</u> | | | | |
| 42 | Advances in Aid of Construction (AIAC) | \$ - x | \$ - | - |
| 43 | Contributions in Aid of Construction (CIAC) | (49,164) x | - | (49,164) |
| 44 | Less: Accumulated Amortization | 7,813 x | - | 7,813 |
| 45 | Net CIAC (L25 - L26) | (41,351) x | - | (41,351) |
| 46 | Total Advances and Contributions | (41,351) x | - | (41,351) |
| 47 | Customer Deposits | - | - | - |
| 48 | Meter Advances | - | - | - |
| 49 | Deferred Income Tax Credits | (62,528) x | - | (62,528) |
| <u>ADD:</u> | | | | |
| 50 | Working Capital Allowance | (3,029) x | (3,862) | (6,891) |
| 51 | Phoenix Office Allocation | 13,936 x | - | 13,936 |
| 52 | Meter Shop Allocation | 259 x | - | 259 |
| 53 | Projected Capital Expenditures | - | - | - |
| 54 | Deferred Debits | - | - | - |
| 55 | Other Additions | - | - | - |
| 56 | Total Rate Base | \$ 314,131 | \$ (3,862) | \$ 310,269 |

Arizona Water Company - Stanfield
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Test Year Ended December 31, 2003

Schedule REL- 5

OPERATING INCOME ADJUSTMENT NO. 1 - CASH WORKING CAPITAL

| LINE NO. | DESCRIPTION | (A) | (B) | (C) |
|-------------|----------------------------------|---------------------|---------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENT | STAFF AS ADJUSTED |
| 1 | Cash Working Capital | \$ (7,291) | \$ (3,862) | \$ (11,153) |
| 2 | Materials and Supplies Inventory | 931 | - | 931 |
| 3 | Required Bank Balances | 2,019 | - | 2,019 |
| 4 | Prepayments and Special Deposits | 1,312 | - | 1,312 |
| 5 | Total | <u>\$ (3,029)</u> | <u>\$ (3,862)</u> | <u>\$ (6,891)</u> |

OPERATING INCOME - TEST YEAR AND STAFF PROPOSED

| LINE NO. | DESCRIPTION | [A] COMPANY TEST YEAR AS FILED | [B] STAFF TEST YEAR ADJUSTMENTS | [C] STAFF TEST YEAR AS ADJUSTED | [D] STAFF PROPOSED CHANGES | [E] STAFF RECOMMENDED |
|----------------------------|--|---|--|---|-------------------------------------|-----------------------------|
| <u>REVENUES:</u> | | | | | | |
| 1 | Total Operating Revenues | \$ 131,003 | \$ - | \$ 131,003 | \$ 6,108 | \$ 137,111 |
| <u>EXPENSES:</u> | | | | | | |
| Source of Supply Expenses: | | | | | | |
| 2 | Purchased Water | \$ - | \$ - | \$ - | \$ - | \$ - |
| 3 | Other | 396 | - | 396 | - | 396 |
| Pumping Expenses: | | | | | | |
| 4 | Purchased Power | 17,409 | - | 17,409 | - | 17,409 |
| 5 | Purchased Gas | - | - | - | - | - |
| 6 | Other | 4,120 | - | 4,120 | - | 4,120 |
| 7 | Water Treatment Expenses | 430 | - | 430 | - | 430 |
| 8 | Transmission and Distribution Expenses | 12,240 | - | 12,240 | - | 12,240 |
| 9 | Customer Account Expenses | 8,604 | - | 8,604 | 14 | 8,618 |
| 10 | Sales Expenses | 44 | - | 44 | - | 44 |
| 11 | Administrative and General Expenses | 14,451 | (150) | 14,301 | - | 14,301 |
| 12 | Total Operation and Maintenance | \$ 57,694 | (150) | 57,544 | 14 | 57,559 |
| 13 | Depreciation and Amortization | 24,713 | - | 24,713 | - | 24,713 |
| 15 | Ad Valorem (Property) | 13,290 | (287) | 13,003 | - | 13,003 |
| Taxes: | | | | | | |
| 14 | Federal & State Income Tax | 8,274 | 2,442 | 10,716 | 2,352 | 13,068 |
| 16 | Other | 1,154 | - | 1,154 | - | 1,154 |
| 17 | Total Operating Expenses | \$ 105,125 | \$ 2,006 | \$ 107,131 | \$ 2,366 | \$ 109,497 |
| 18 | Operating Income (Loss) | \$ 25,878 | \$ (2,006) | \$ 23,872 | \$ 3,742 | \$ 27,614 |

Arizona Water Company - Stanfield
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 Test Year Ended December 31, 2003

SUMMARY OF OPERATING INCOME ADJUSTMENTS - TEST YEAR

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ #1 | [C] ADJ #2 | [D] ADJ #3 | [E] ADJ #4 | [F] ADJ #5 | [G] STAFF ADJUSTED |
|----------|--|-------------------------|---------------|---------------|---------------|---------------|---------------|-----------------------|
| 1 | REVENUES: Total Operating Revenues | \$ 131,003 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 131,003 |
| | EXPENSES: | | | | | | | |
| | Source of Supply Expenses: | | | | | | | |
| 2 | Purchased Water | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| 3 | Other | 396 | - | - | - | - | - | 396 |
| 4 | Pumping Expenses: | 17,409 | - | - | - | - | - | 17,409 |
| 5 | Purchased Power | - | - | - | - | - | - | - |
| 6 | Purchased Gas | 4,120 | - | - | - | - | - | 4,120 |
| 7 | Other | 430 | - | - | - | - | - | 430 |
| 8 | Water Treatment Expenses | 12,240 | - | - | - | - | - | 12,240 |
| 9 | Transmission and Distribution Expenses | 8,604 | - | - | - | - | - | 8,604 |
| 10 | Customer Account Expenses | 44 | - | - | - | - | - | 44 |
| 11 | Sales Expenses | 14,451 | (104) | (46) | - | - | - | 14,301 |
| 12 | Administrative and General Expenses | 57,694 | (104) | (46) | - | - | - | 57,544 |
| 13 | Total Operation and Maintenance | 24,713 | - | - | - | - | - | 24,713 |
| 14 | Depreciation and Amortization | 13,290 | - | - | (287) | - | - | 13,003 |
| 15 | Ad Valorem (Property) | | | | | | | |
| 16 | Taxes: | | | | | | | |
| 17 | Federal & State Income Tax | 8,274 | - | - | - | 1,560 | 881 | 10,716 |
| 18 | Other | 1,154 | - | - | - | - | - | 1,154 |
| | Total Operating Expenses | \$ 105,125 | \$ (104) | \$ (46) | \$ (287) | \$ 1,560 | \$ 881 | \$ 107,131 |
| | Operating Income (Loss) | \$ 25,878 | \$ 104 | \$ 46 | \$ 287 | \$ (1,560) | \$ (881) | \$ 23,872 |
| | | | Rate Case | Charity | Prop Tax | Fed Tax | State Tax | |

Arizona Water Company - Stanfield
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Schedule REL- 8

OPERATING INCOME ADJUSTMENT NO. 1 - RATE CASE EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|--|----------------------------|----------------------------|-----------------------------|
| 1 | Rate Case Expense for Eastern Group | \$ 253,550 | \$ (28,550) | \$ 225,000 |
| 2 | Allocation Factor | 0.01090 | | 0.01090 |
| 3 | Annual Rate Case Expense for Eastern Group | \$ 2,764 | \$ (311) | \$ 2,453 |
| 4 | Number of Years Amortized | 3 | | 3 |
| 5 | Annual Rate Case Expense | \$ 921 | \$ (104) | \$ 818 |

Arizona Water Company - Stanfield
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Schedule REL-9

OPERATING INCOME ADJUSTMENT NO. 2 - CHARITABLE CONTRIBUTIONS

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|-------------|---|---------------------|----------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Charitable Contributions, Gifts, Awards, Etc. | \$ 216 | \$ (46) | \$ 170 |

OPERATING INCOME ADJUSTMENT NO. 3 - PROPERTY TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) | (B) | (C) |
|----------|--|------------------|------------------|---------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENT | STAFF AS ADJUSTMENT |
| 1 | 20021 Annual Gross Revenues | | | \$ 142,033 |
| 2 | 2003 Annual Gross Revenues | | | \$ 131,003 |
| 3 | 2004 Annual Gross Revenues | | | \$ 130,572 |
| 4 | Plus Staff's Recommended Increase | | | \$ 6,108 |
| 5 | Subtotal (Lines 1 + 2 + 3 + 4) | | | \$ 409,716 |
| 6 | Three Year Average Calculation | | | 3 |
| 7 | Three Year Average (Line 5 / Line 6) | | | \$ 136,572 |
| 8 | Department of Revenue Multiplier | | | 2 |
| 9 | Revenue Base Value (Line 7 x Line 8) | | | \$ 273,144 |
| 10 | Plus: 10% of 2001 CWIP | | | 1,000 |
| 11 | Less: Net Book Value of Leased Vehicles (See Note A Below) | | | \$ 242 |
| 12 | Full Cash Value (Line 9 + Line 10 - Line 11) | | | \$ 273,902 |
| 13 | Assessment Ratio | | | 0.25 |
| 14 | Assessed Value (Line 12 x Line 13) | | | \$ 68,476 |
| 15 | Composite Property Tax Rate (See Note B Below) | | | 0.1899 |
| 16 | Staff Proposed Property Tax Expense (Line 14 x Line 15) | \$ 13,290 | \$ (287) | \$ 13,003 |

Note A: Net Book Value of Licensed Vehicles provided by Arizona Water.

Note B: Property tax rate provided by Arizona Dept. of Revenue.

Arizona Water Company - Stanfield
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Schedule REL- 11

OPERATING INCOME ADJUSTMENT NO. 4 and 5 - INCOME TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|----------------------|----------------------------|----------------------------|-----------------------------|
| 1 | Federal Income Taxes | \$ 7,221 | \$ 1,560 | \$ 8,781 |
| 2 | State Income Taxes | 1,053 | 881 | 1,934 |
| 3 | Total Income Taxes | \$ 8,274 | \$ 2,442 | \$ 10,716 |

Arizona Water Company - White Tank
 Docket No. W-01445A-04-0650
 Test Year Ended December 31, 2003

Schedule REL-1

REVENUE REQUIREMENT

| <u>LINE NO.</u> | <u>DESCRIPTION</u> | <u>[A] COMPANY ORIGINAL COST</u> | <u>[B] STAFF ORIGINAL COST</u> | |
|-----------------|--|--|--|--------|
| 1 | Adjusted Rate Base | \$ 2,441,155 | x \$ 1,898,133 | |
| 2 | Adjusted Operating Income (Loss) | \$ 121,440 | \$ 135,790 | |
| 3 | Current Rate of Return (L2 / L1) | 4.97% | 7.15% | |
| 4 | Required Rate of Return | 10.5000% | 8.9000% | 8.6000 |
| 5 | Required Operating Income (L4 * L1) | \$ 256,321 | \$ 168,934 | |
| 6 | Operating Income Deficiency (L5 - L2) | \$ 134,881 | \$ 33,144 | |
| 7 | Gross Revenue Conversion Factor | 1.63245 | 1.63246 | |
| 8 | Increase In Gross Revenue (L7 * L6) | \$ 220,187 | \$ 54,107 | |
| 9 | Adjusted Test Year Revenue | \$ 783,483 | \$ 783,483 | |
| 10 | Proposed Annual Revenue (L8 + L9) Note A | \$ 1,003,670 | \$ 837,590 | |
| 11 | Require Increase in Revenue (%) (L8/L9) | 28.10% | 6.91% | |

GROSS REVENUE CONVERSION FACTOR

Line
No.

Calculation of Gross Revenue Conversion Factor:

| | | | |
|---|--|-----------|------------------------|
| 1 | Recommended Revenue Increase: | | |
| 2 | Billings | | 1.000000 |
| 3 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 4 | Uncollectible Rate After Income Taxes | 0.14374% | |
| 5 | Total Tax Rate | | <u>38.74262%</u> |
| 6 | Gross Revenue Conversion Factor | | <u><u>1.632456</u></u> |

Calculation of Effective Income Tax Rate:

| | | |
|----|--|-------------------------|
| 7 | Operating Income Before Taxes (Arizona Taxable Income) | 100.00000% |
| 8 | Arizona State Income Tax Rate | <u>6.96800%</u> |
| 9 | Federal Taxable Income (L5 - L6) | 93.03200% |
| 10 | Applicable Federal Income Tax Rate (Line 32) | <u>34.00000%</u> |
| 11 | Effective Federal Income Tax Rate (L7 x L8) | <u>31.63088%</u> |
| 12 | Combined Federal and State Income Tax Rate (L6 +L9) | <u><u>38.59888%</u></u> |

Calculation of Uncollectible Rate After Income Taxes:

| | | | |
|----|--|-----------|------------------------|
| 13 | Uncollectible Rate | | 0.23410% |
| 14 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 15 | 1 minus Combined Federal and State Income Tax Rate | | <u>61.40112%</u> |
| 16 | Uncollectible Rate After Income Taxes | | <u><u>0.14374%</u></u> |

Revenue Reconciliation:

| | | | |
|----|--|------------------|-------------------------|
| 17 | Recommended Increase in Revenue (from REL-1, L8) | \$ 54,107 | |
| 18 | Uncollectible Rate | 0.234100% | |
| 19 | Required Increase in Revenue to Provide for Uncollectibles | | \$ 127 |
| 20 | Recommended Increase in Revenue (from REL-1,L8) | \$ 54,107 | |
| 21 | Required Increase in Revenue to Provide for Uncollectibles | 127 | |
| 22 | Incremental Taxable Income | \$ 53,980 | |
| 23 | Combined Federal and State Income Tax Rate | <u>38.59888%</u> | |
| 24 | Required Increase in Revenue to Provide for Income Taxes | | 20,836 |
| 25 | Required Operating Income | \$ 168,934 | |
| 26 | Adjusted Test Year Operating Income (Loss) | <u>135,790</u> | |
| 27 | Required Increase in Operating Income | | 33,144 |
| 28 | Total Required Increase In Revenue | | <u><u>\$ 54,107</u></u> |

Calculation of Income Tax:

| | Test Year | STAFF Recommended | |
|----|---|----------------------|------------------|
| 29 | Revenue | \$ 783,483 | \$ 837,590 |
| 30 | Less: Operating Expenses Excluding Income Taxes | \$ 588,583 | \$ 588,709 |
| 31 | Less: Synchronized Interest | \$ 41,759 | \$ 41,759 |
| 32 | Arizona Taxable Income | \$ 153,141 | \$ 207,121 |
| 33 | Arizona State Income Tax Rate | 6.968% | 6.968% |
| 34 | Arizona Income Tax | \$ 10,671 | \$ 14,432 |
| 35 | Federal Taxable Income | \$ 142,471 | \$ 192,689 |
| 36 | Federal Income Tax @ 34% | \$ 48,440 | \$ 65,514 |
| 37 | Combined Federal and State Income Tax | <u>\$ 59,111</u> | <u>\$ 79,947</u> |
| | | | \$ 20,836 |

Calculation of Interest Synchronization:

| | | |
|----|-------------------------------|------------------|
| 38 | Rate Base | \$ 1,898,133 |
| 39 | Weighted Average Cost of Debt | <u>2.200%</u> |
| 40 | Synchronized Interest | <u>\$ 41,759</u> |

RATE BASE - ORIGINAL COST

| LINE NO. | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENTS | (C) STAFF AS ADJUSTED |
|--------------|---|-----------------------------|--------------------------------|
| 1 | Plant in Service | \$ 6,086,788 | \$ 5,580,520 |
| 2 | Less: Accumulated Depreciation | (1,088,906) | (1,088,906) |
| 3 | Net Plant in Service | <u>\$ 4,997,882</u> x | <u>\$ 4,491,614</u> |
| <u>LESS:</u> | | | |
| 4 | Advances in Aid of Construction (AIAC) | (1,887,880) | (1,887,880) |
| 5 | Contributions in Aid of Construction (CIAC) | \$ (554,839) | \$ (554,839) |
| 6 | Less: Accumulated Amortization | 111,896 | 111,896 |
| 7 | Net CIAC | <u>(442,943)</u> | <u>(442,943)</u> |
| 8 | Total Advances and Contributions | (2,330,823) | (2,330,823) |
| 9 | Customer Deposits | - | - |
| 10 | Meter Advances | - | - |
| 11 | Deferred Income Tax Credits | (352,670) | (352,670) |
| <u>ADD:</u> | | | |
| 12 | Working Capital | 36,105 | (649) |
| 13 | Phoenix Office Allocation | 89,008 | 89,008 |
| 14 | Meter Shop Allocation | 1,653 | 1,653 |
| 15 | | - | - |
| 16 | | - | - |
| 17 | | - | - |
| 18 | Total Rate Base | <u>\$ 2,441,155</u> | <u>\$ 1,898,133</u> |

SUMMARY OF RATE BASE ADJUSTMENTS

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ No.1 | [C] ADJ No. 2 | [D] STAFF ADJUSTED |
|--------------------------|--|----------------------------|-----------------|------------------|--------------------------|
| <u>PLANT IN SERVICE:</u> | | | | | |
| 1 | Organization | \$ - | \$ - | \$ - | \$ - |
| 2 | Franchises | - | - | - | - |
| 3 | Other Intangibles | - | - | - | - |
| 4 | Water Rights | 5,379 | - | - | 5,379 |
| 5 | Other Source of Supply Land | 28,521 | - | - | 28,521 |
| 6 | Wells | 535,369 | - | - | 535,369 |
| 7 | Pumping Plant Land | - | - | - | - |
| 8 | Pumping Plant Structures & Improvements | 18,637 | - | - | 18,637 |
| 9 | Electric Pumping Equipment | 509,917 | - | - | 509,917 |
| 10 | Gas Engine Equipment | - | - | - | - |
| 11 | Water Treatment Land | - | - | - | - |
| 12 | Water Treatment Structures & Improvmts | 79 | - | - | 79 |
| 13 | Water Treatment Equipment | 15,053 | - | - | 15,053 |
| 14 | Transmission and Distribution Land | 35,990 | - | - | 35,990 |
| 15 | Storage Tanks | 481,206 | - | - | 481,206 |
| 16 | Transmission and Distribution Mains | 2,979,570 | - | - | 2,979,570 |
| 17 | Fire Sprinkler Taps | 11,849 | - | - | 11,849 |
| 18 | Services | 554,285 | - | - | 554,285 |
| 19 | Meters | 90,488 | - | - | 90,488 |
| 20 | Hydrants | 218,331 | - | - | 218,331 |
| 21 | General Plant Land | - | - | - | - |
| 22 | General Plant Structures | 19,976 | - | - | 19,976 |
| 23 | Leasehold Improvements | - | - | - | - |
| 24 | Office Furniture and Improvements | 15,017 | - | - | 15,017 |
| 25 | Warehouse Equipment | 1,043 | - | - | 1,043 |
| 26 | Tools, Shop and Garage Equipment | 18,697 | - | - | 18,697 |
| 27 | Laboratory Equipment | 2,477 | - | - | 2,477 |
| 28 | Power Operated Equipment | 635 | - | - | 635 |
| 29 | Communication Equipment | 27,428 | - | - | 27,428 |
| 30 | Miscellaneous Equipment | 10,573 | - | - | 10,573 |
| 31 | Total Plant in Service - Actual | 5,580,520 x | - | - | 5,580,520 |
| 32 | CAP Pro-forma Adjustment - Post TY Plant | 506,268 x | (506,268) | - | - |
| 33 | Accumulated Depreciation, Retired Plant | - | - | - | - |
| 34 | Total Plant in Service - Adjusted | \$ 6,086,788 x | \$ (506,268) | \$ - | \$ 5,580,520 |
| 35 | Less: Accumulated Depreciation - Actual | \$ (1,079,029) x | - | - | (1,079,029) |
| 36 | Less: Accumulated Depreciation - Post TY | (9,877) | - | - | (9,877) |
| 37 | Less: Accumulated Depreciation - 12 Mos TY | - | - | - | - |
| 38 | Less: Accumulated Depreciation - Retired Plant | - | - | - | - |
| 39 | Total Accumulated Depreciation - Adjusted | \$ (1,088,906) x | \$ - | \$ - | \$ (1,088,906) |
| 40 | Plus: Construction Work In Progress | - | - | - | - |
| 41 | Net Plant in Service | \$ 4,997,882 x | \$ (506,268) | \$ - | \$ 4,491,614 |
| <u>LESS:</u> | | | | | |
| 42 | Advances in Aid of Construction (AIAC) | \$ (1,887,880) x | \$ - | \$ - | (1,887,880) |
| 43 | Contributions in Aid of Construction (CIAC) | (554,839) x | - | - | (554,839) |
| 44 | Less: Accumulated Amortization | 111,896 x | - | - | 111,896 |
| 45 | Net CIAC (L25 - L26) | (442,943) x | - | - | (442,943) |
| 46 | Total Advances and Contributions | (2,330,823) x | - | - | (2,330,823) |
| 47 | Customer Deposits | - | - | - | - |
| 48 | Meter Advances | - | - | - | - |
| 49 | Deferred Income Tax Credits | (352,670) x | - | - | (352,670) |
| <u>ADD:</u> | | | | | |
| 50 | Working Capital Allowance | 36,105 x | - | (36,754) | (649) |
| 51 | Phoenix Office Allocation | 89,008 x | - | - | 89,008 |
| 52 | Meter Shop Allocation | 1,653 x | - | - | 1,653 |
| 53 | Projected Capital Expenditures | - | - | - | - |
| 54 | Deferred Debits | - | - | - | - |
| 55 | Other Additions | - | - | - | - |
| 56 | Total Rate Base | \$ 2,441,155 ? | \$ (506,268) | \$ (36,754) | \$ 1,898,133 |

RATE BASE ADJUSTMENT NO. 1 - DEFERED CAP M&I CHARGES

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|----------|-------------------------------------|-------------------|---------------------|-------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Deferred CAP M&I Charges | \$ 506,268 | \$ (506,268) | \$ - |
| 2 | <i>Post-Test Year Plant</i> | \$ - | \$ - | \$ - |
| 3 | <i>Post Test Year Retired Plant</i> | \$ - | \$ - | \$ - |
| 4 | Adjusted Test Year Plant | \$ 506,268 | \$ (506,268) | \$ - |

To eliminated deferred M&I charges because the CAP water is not being delivered and therefore not used and useful.

Adjustments:

- Column [A]: Company Schedule
- Column [B]: Testimony (REL)
- Column [C]: Column (A) plus or minus column (B)

Arizona Water Company - White Tank
 Docket No. W-01445A-04-0650
 Test Year Ended December 31, 2003

Schedule REL- 6

OPERATING INCOME ADJUSTMENT NO. 2 - CASH WORKING CAPITAL

| LINE NO. | DESCRIPTION | (A) | (B) | (C) |
|----------|----------------------------------|------------------|------------------|-------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENT | STAFF AS ADJUSTED |
| 1 | Cash Working Capital | \$ 9,329 | \$ (36,754) | \$ (27,425) |
| 2 | Materials and Supplies Inventory | 5,500 | - | 5,500 |
| 3 | Required Bank Balances | 12,897 | - | 12,897 |
| 4 | Prepayments and Special Deposits | 8,379 | - | 8,379 |
| 5 | Total | \$ 36,105 | \$ (36,754) | \$ (649) |

OPERATING INCOME - TEST YEAR AND STAFF PROPOSED

| LINE NO. | DESCRIPTION | [A] COMPANY TEST YEAR AS FILED | [B] STAFF TEST YEAR ADJUSTMENTS | [C] STAFF TEST YEAR AS ADJUSTED | [D] STAFF PROPOSED CHANGES | [E] STAFF RECOMMENDED |
|----------------------------|--|---|--|---|-------------------------------------|-----------------------------|
| <u>REVENUES:</u> | | | | | | |
| 1 | Total Operating Revenues | \$ 783,483 | \$ - | \$ 783,483 | \$ 54,107 | \$ 837,590 |
| <u>EXPENSES:</u> | | | | | | |
| Source of Supply Expenses: | | | | | | |
| 2 | Purchased Water | \$ 37,383 | \$ (27,104) | \$ 10,279 | \$ - | \$ 10,279 |
| 3 | Other | 2,880 | - | 2,880 | - | 2,880 |
| Pumping Expenses: | | | | | | |
| 4 | Purchased Power | 78,404 | 456 | 78,860 | - | 78,860 |
| 5 | Purchased Gas | - | - | - | - | - |
| 6 | Other | 27,057 | - | 27,057 | - | 27,057 |
| 7 | Water Treatment Expenses | 9,655 | - | 9,655 | - | 9,655 |
| 8 | Transmission and Distribution Expenses | 79,261 | - | 79,261 | - | 79,261 |
| 9 | Customer Account Expenses | 54,850 | - | 54,850 | 127 | 54,977 |
| 10 | Sales Expenses | 263 | - | 263 | - | 263 |
| 11 | Administrative and General Expenses | 87,371 | (960) | 86,411 | - | 86,411 |
| 12 | Total Operation and Maintenance | \$ 377,124 | (27,608) | 349,516 | 127 | 349,642 |
| 13 | Depreciation and Amortization | 182,626 | - | 182,626 | - | 182,626 |
| 15 | Ad Valorem (Property) | 41,993 | 7,840 | 49,833 | - | 49,833 |
| Taxes: | | | | | | |
| 14 | Federal & State Income Tax | 53,692 | 5,419 | 59,111 | 20,836 | 79,947 |
| 16 | Other | 6,608 | - | 6,608 | - | 6,608 |
| 17 | Total Operating Expenses | <u>\$ 662,043</u> | <u>\$ (14,350)</u> | <u>\$ 647,693</u> | <u>\$ 20,962</u> | <u>\$ 668,656</u> |
| 18 | Operating Income (Loss) | <u>\$ 121,440</u> | <u>\$ 14,350</u> | <u>\$ 135,790</u> | <u>\$ 33,144</u> | <u>\$ 168,934</u> |

Arizona Water Company - White Tank
 Docket No. W-01445A-04-0650
 Test Year Ended December 31, 2003

SUMMARY OF OPERATING INCOME ADJUSTMENTS - TEST YEAR

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ #1 | [C] ADJ #2 | [D] ADJ #3 | [E] ADJ #4 | [F] ADJ #5 | [G] ADJ #6 | [H] ADJ #7 | [I] STAFF ADJUSTED |
|----------------------------|--|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------------|
| REVENUES: | | | | | | | | | | |
| 1 | Total Operating Revenues | \$ 783,483 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 783,483 |
| EXPENSES: | | | | | | | | | | |
| Source of Supply Expenses: | | | | | | | | | | |
| 2 | Purchased Water | \$ 37,383 | (27,104) | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 10,279 |
| 3 | Other | 2,880 | - | - | - | - | - | - | - | 2,880 |
| Pumping Expenses: | | | | | | | | | | |
| 4 | Purchased Power | 78,404 | - | 456 | - | - | - | - | - | 78,860 |
| 5 | Purchased Gas | - | - | - | - | - | - | - | - | - |
| 6 | Other | 27,057 | - | - | - | - | - | - | - | 27,057 |
| 7 | Water Treatment Expenses | 9,655 | - | - | - | - | - | - | - | 9,655 |
| 8 | Transmission and Distribution Expenses | 79,261 | - | - | - | - | - | - | - | 79,261 |
| 9 | Customer Account Expenses | 54,850 | - | - | - | - | - | - | - | 54,850 |
| 10 | Sales Expenses | 263 | - | - | - | - | - | - | - | 263 |
| 11 | Administrative and General Expenses | 87,371 | - | - | (665) | (295) | - | - | - | 86,411 |
| 12 | Total Operation and Maintenance | 377,124 | (27,104) | 456 | (665) | (295) | - | - | - | 349,516 |
| 13 | Depreciation and Amortization | 182,626 | - | - | - | - | - | - | - | 182,626 |
| 15 | Ad Valorem (Property) | 41,993 | - | - | - | - | 7,840 | - | - | 49,833 |
| Taxes: | | | | | | | | | | |
| 14 | Federal & State Income Tax | 53,692 | - | - | - | - | - | 1,871 | 3,548 | 59,111 |
| 16 | Other | 6,608 | - | - | - | - | - | - | - | 6,608 |
| 17 | Total Operating Expenses | \$ 662,043 x | \$ (27,104) | \$ 456 | \$ (665) | \$ (295) | \$ 7,840 | \$ 1,871 | \$ 3,548 | \$ 647,693 |
| 18 | Operating Income (Loss) | \$ 121,440 x | \$ 27,104 | \$ (456) | \$ 665 | \$ 295 | \$ (7,840) | \$ (1,871) | \$ (3,548) | \$ 135,790 |

Arizona Water Company - White Tank
Docket No. W-01445A-04-0650
Test Year Ended December 31, 2003

Schedule REL- 9

OPERATING INCOME ADJUSTMENT NO. 1 - PURCHASED WATER EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|-------------|-------------------------|----------------------------|----------------------------|-----------------------------|
| 1 | Purchased Water Expense | \$ 37,383 | \$ (27,104) | \$ 10,279 |

Arizona Water Company - White Tank
Docket No. W-01445A-04-0650
Test Year Ended December 31, 2003

Schedule REL-10

OPERATING INCOME ADJUSTMENT NO. 2 - PURCHASED PUMPING POWER EXPENSE

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|-------------|-------------------------|---------------------|----------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Purchased Pumping Power | \$ 78,404 | \$ 456 | \$ 78,860 |

Arizona Water Company - White Tank
Docket No. W-01445A-04-0650
Test Year Ended December 31, 2003

Schedule REL- 11

OPERATING INCOME ADJUSTMENT NO. 3 - RATE CASE EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|--|----------------------------|----------------------------|-----------------------------|
| 1 | Rate Case Expense for Eastern Group | \$ 253,550 | \$ (28,550) | \$ 225,000 |
| 2 | Allocation Factor | 0.06990 | | 0.06990 |
| 3 | Annual Rate Case Expense for Eastern Group | \$ 17,723 | \$ (1,996) | \$ 15,728 |
| 4 | Number of Years Amortized | 3 | | 3 |
| 5 | Annual Rate Case Expense | \$ 5,908 | \$ (665) | \$ 5,243 |

Arizona Water Company - White Tank
Docket No. W-01445A-04-0650
Test Year Ended December 31, 2003

Schedule REL-12

OPERATING INCOME ADJUSTMENT NO. 4 - CHARITABLE CONTRIBUTIONS

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|-------------|---|---------------------|----------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Charitable Contributions, Gifts, Awards, Etc. | \$ 1,029 | \$ (295) | \$ 734 |

OPERATING INCOME ADJUSTMENT NO. 5 - PROPERTY TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) | (B) | (C) |
|----------|--|------------------|------------------|---------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENT | STAFF AS ADJUSTMENT |
| 1 | 2001 Annual Gross Revenues | | | \$ 740,876 |
| 2 | 2002 Annual Gross Revenues | | | \$ 783,483 |
| 3 | 2003 Annual Gross Revenues | | | \$ 889,507 |
| 4 | Plus Staff's Recommended Increase | | | \$ 54,107 |
| 5 | Subtotal (Lines 1 + 2 + 3 + 4) | | | \$ 2,467,973 |
| 6 | Three Year Average Calculation | | | 3 |
| 7 | Three Year Average (Line 5 / Line 6) | | | \$ 822,658 |
| 8 | Department of Revenue Multiplier | | | 2 |
| 9 | Revenue Base Value (Line 7 x Line 8) | | | \$ 1,645,315 |
| 10 | Plus: 10% of 2001 CWIP | | | 10 |
| 11 | Less: Net Book Vaule of Leased Vehicles (See Note A Below) | | | \$ 38,463 |
| 12 | Full Cash Value (Line 9 + Line 10 - Line 11) | | | \$ 1,606,862 |
| 13 | Assessment Ratio | | | 0.25 |
| 14 | Assessed Value (Line 12 x Line 13) | | | \$ 401,716 |
| 15 | Composite Property Tax Rate (See Note B Below) | | | 0.12405 |
| 16 | Staff Proposed Property Tax Expense (Line 14 x Line 15) | \$ 41,993 | \$ 7,840 | \$ 49,833 |

Note A: Net Book Value of Licensed Vehicles provided by Arizona Water.

Note B: Property tax rate provided by Arizona Dept. of Revenue.

Arizona Water Company - Oracle
Docket No. W-01445A-02-0619
Test Year Ended December 31, 2001

Schedule REL- 14

OPERATING INCOME ADJUSTMENT NO. 6 and 7 - INCOME TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|----------------------|----------------------------|----------------------------|-----------------------------|
| 1 | Federal Income Taxes | \$ 46,569 | \$ 1,871 | \$ 48,440 |
| 2 | State Income Taxes | 7,123 | 3,548 | 10,671 |
| 3 | Total Income Taxes | <u>\$ 53,692</u> | <u>\$ 5,419</u> | <u>\$ 59,111</u> |

REVENUE REQUIREMENT

| <u>LINE NO.</u> | <u>DESCRIPTION</u> | <u>[A] COMPANY ORIGINAL COST</u> | <u>[B] STAFF ORIGINAL COST</u> |
|-----------------|--|--|--|
| 1 | Adjusted Rate Base | \$ 3,817,510 | \$ 2,713,030 |
| 2 | Adjusted Operating Income (Loss) | \$ 100,737 | \$ 165,567 |
| 3 | Current Rate of Return (L2 / L1) | 2.64% | 6.10% |
| 4 | Required Rate of Return | 10.5000% | 8.9000% |
| 5 | Required Operating Income (L4 * L1) | \$ 400,839 | \$ 241,460 |
| 6 | Operating Income Deficiency (L5 - L2) | \$ 300,102 | \$ 75,892 |
| 7 | Gross Revenue Conversion Factor | 1.63245 | 1.63246 |
| 8 | Increase In Gross Revenue (L7 * L6) | \$ 489,901 | \$ 123,891 |
| 9 | Adjusted Test Year Revenue | \$ 1,427,285 | \$ 1,427,285 |
| 10 | Proposed Annual Revenue (L8 + L9) Note A | \$ 1,917,186 | \$ 1,551,176 |
| 11 | Require Increase in Revenue (%) (L8/L9) | 34.32% | 8.68% |

GROSS REVENUE CONVERSION FACTOR

Line
No.

Calculation of Gross Revenue Conversion Factor:

| | | | |
|---|--|-----------|-----------------|
| 1 | Recommended Revenue Increase: | | |
| 2 | Billings | | 1.000000 |
| 3 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 4 | Uncollectible Rate After Income Taxes | 0.14374% | |
| 5 | Total Tax Rate | | 38.74262% |
| 6 | Gross Revenue Conversion Factor | | <u>1.632456</u> |

Calculation of Effective Income Tax Rate:

| | | |
|----|--|------------------|
| 7 | Operating Income Before Taxes (Arizona Taxable Income) | 100.00000% |
| 8 | Arizona State Income Tax Rate | 6.96800% |
| 9 | Federal Taxable Income (L5 - L6) | 93.03200% |
| 10 | Applicable Federal Income Tax Rate (Line 32) | 34.00000% |
| 11 | Effective Federal Income Tax Rate (L7 x L8) | 31.63088% |
| 12 | Combined Federal and State Income Tax Rate (L6 +L9) | <u>38.59888%</u> |

Calculation of Uncollectible Rate After Income Taxes:

| | | | |
|----|--|-----------|-----------------|
| 13 | Uncollectible Rate | | 0.23410% |
| 14 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 15 | 1 minus Combined Federal and State Income Tax Rate | | 61.40112% |
| 16 | Uncollectible Rate After Income Taxes | | <u>0.14374%</u> |

Revenue Reconciliation:

| | | | |
|----|--|------------|----------------|
| 17 | Recommended Increase in Revenue (from REL-1, L8) | \$ 123,891 | |
| 18 | Uncollectible Rate | 0.234100% | |
| 19 | Required Increase in Revenue to Provide for Uncollectibles | \$ | 290 |
| 20 | Recommended Increase in Revenue (from REL-1,L8) | \$ 123,891 | |
| 21 | Required Increase in Revenue to Provide for Uncollectibles | 290 | |
| 22 | Incremental Taxable Income | \$ 123,601 | |
| 23 | Combined Federal and State Income Tax Rate | 38.59888% | |
| 24 | Required Increase in Revenue to Provide for Income Taxes | | 47,709 |
| 25 | Required Operating Income | \$ 241,460 | |
| 26 | Adjusted Test Year Operating Income (Loss) | 165,567 | |
| 27 | Required Increase in Operating Income | | 75,892 |
| 28 | Total Required Increase In Revenue | \$ | <u>123,891</u> |

Calculation of Income Tax:

| | Test Year | STAFF Recommended | |
|----|---|----------------------|--------------|
| 29 | Revenue | \$ 1,427,285 | \$ 1,551,176 |
| 30 | Less: Operating Expenses Excluding Income Taxes | \$ 1,195,157 | \$ 1,195,447 |
| 31 | Less: Synchronized Interest | \$ 59,687 | \$ 59,687 |
| 32 | Arizona Taxable Income | \$ 172,441 | \$ 296,042 |
| 33 | Arizona State Income Tax Rate | 6.968% | 6.968% |
| 34 | Arizona Income Tax | \$ 12,016 | \$ 20,628 |
| 35 | Federal Taxable Income | \$ 160,425 | \$ 275,414 |
| 36 | Federal Income Tax @ 34% | \$ 54,545 | \$ 93,641 |
| 37 | Combined Federal and State Income Tax | \$ 66,560 | \$ 114,269 |
| | | | \$ 47,709 |

Calculation of Interest Synchronization:

| | | |
|----|-------------------------------|--------------|
| 38 | Rate Base | \$ 2,713,030 |
| 39 | Weighted Average Cost of Debt | 2.200% |
| 40 | Synchronized Interest | \$ 59,687 |

RATE BASE - ORIGINAL COST

| LINE NO. | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENTS | (C) STAFF AS ADJUSTED |
|--------------|---|-----------------------------|--------------------------------|
| 1 | Plant in Service | \$ 7,129,140 | \$ 6,083,129 |
| 2 | Less: Accumulated Depreciation | (2,271,697) | (2,271,697) |
| 3 | Net Plant in Service | <u>\$ 4,857,443</u> x | <u>\$ 3,811,432</u> |
| <u>LESS:</u> | | | |
| 4 | Advances in Aid of Construction (AIAC) | (406,644) x | (406,644) |
| 5 | Contributions in Aid of Construction (CIAC) | \$ (437,102) | \$ (437,102) |
| 6 | Less: Accumulated Amortization | 74,970 | 74,970 |
| 7 | Net CIAC | <u>(362,132) x</u> | <u>(362,132)</u> |
| 8 | Total Advances and Contributions | (768,776) | (768,776) |
| 9 | Customer Deposits | - | - |
| 10 | Meter Advances | - | - |
| 11 | Deferred Income Tax Credits | (504,369) x | (504,369) |
| <u>ADD:</u> | | | |
| 12 | Working Capital | 32,202 x | (26,267) x |
| 13 | Phoenix Office Allocation | 197,345 x | 197,345 |
| 14 | Meter Shop Allocation | 3,665 x | 3,665 |
| 15 | | - | - |
| 16 | | - | - |
| 17 | | - | - |
| 18 | Total Rate Base | <u>\$ 3,817,510</u> | <u>\$ 2,713,030</u> |

SUMMARY OF RATE BASE ADJUSTMENTS

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ No.1 | [C] ADJ No. 2 | [D] STAFF ADJUSTED |
|--------------------------|--|----------------------------|-----------------|------------------|--------------------------|
| <u>PLANT IN SERVICE:</u> | | | | | |
| 1 | Organization | \$ - | \$ - | \$ - | \$ - |
| 2 | Franchises | 8,740 | - | - | 8,740 |
| 3 | Other Intangibles | - | - | - | - |
| 4 | Water Rights | 13,508 | - | - | 13,508 |
| 5 | Other Source of Supply Land | 2,927 | - | - | 2,927 |
| 6 | Wells | 226,328 | - | - | 226,328 |
| 7 | Pumping Plant Land | 25,684 | - | - | 25,684 |
| 8 | Pumping Plant Structures & Improvements | 8,348 | - | - | 8,348 |
| 9 | Electric Pumping Equipment | 732,365 | - | - | 732,365 |
| 10 | Gas Engine Equipment | 20,026 | - | - | 20,026 |
| 11 | Water Treatment Land | - | - | - | - |
| 12 | Water Treatment Structures & Improvments | 1,847 | - | - | 1,847 |
| 13 | Water Treatment Equipment | 103,606 | - | - | 103,606 |
| 14 | Transmission and Distribution Land | - | - | - | - |
| 15 | Storage Tanks | 286,758 | - | - | 286,758 |
| 16 | Transmission and Distribution Mains | 2,721,370 | - | - | 2,721,370 |
| 17 | Fire Sprinkler Taps | 73,130 | - | - | 73,130 |
| 18 | Services | 1,151,206 | - | - | 1,151,206 |
| 19 | Meters | 209,735 | - | - | 209,735 |
| 20 | Hydrants | 218,296 | - | - | 218,296 |
| 21 | General Plant Land | - | - | - | - |
| 22 | General Plant Structures | 25,180 | - | - | 25,180 |
| 23 | Leasehold Improvements | 48,181 | - | - | 48,181 |
| 24 | Office Furniture and Improvements | 77,911 | - | - | 77,911 |
| 25 | Warehouse Equipment | - | - | - | - |
| 26 | Tools, Shop and Garage Equipment | 47,217 | - | - | 47,217 |
| 27 | Laboratory Equipment | 6,726 | - | - | 6,726 |
| 28 | Power Operated Equipment | 15,016 | - | - | 15,016 |
| 29 | Communication Equipment | 52,470 | - | - | 52,470 |
| 30 | Miscellaneous Equipment | 6,554 | - | - | 6,554 |
| 31 | Total Plant in Service - Actual | 6,083,129 x | - | - | 6,083,129 |
| 32 | Pro-forma Adjustment - Post TY Plant | 1,046,011 | (1,046,011) | - | - |
| 33 | Accumulated Depreciation, Retired Plant | - | - | - | - |
| 34 | Total Plant in Service - Adjusted | \$ 7,129,140 x | \$ (1,046,011) | \$ - | \$ 6,083,129 |
| 35 | Less: Accumulated Depreciation - Actual | \$ (2,249,826) x | - | - | (2,249,826) |
| 36 | Less: Accumulated Depreciation - Post TY | (21,871) | - | - | (21,871) |
| 37 | Less: Accumulated Depreciation - 12 Mos TY | - | - | - | - |
| 38 | Less: Accumulated Depreciation - Retired Plant | - | - | - | - |
| 39 | Total Accumulated Depreciation - Adjusted | \$ (2,271,697) | \$ - | \$ - | \$ (2,271,697) |
| 40 | Plus: Construction Work in Progress | - | - | - | - |
| 41 | Net Plant in Service | \$ 4,857,443 x | \$ (1,046,011) | \$ - | \$ 3,811,432 |
| <u>LESS:</u> | | | | | |
| 42 | Advances in Aid of Construction (AIAC) | \$ (406,644) x | \$ - | \$ - | (406,644) |
| 43 | Contributions in Aid of Construction (CIAC) | (437,102) x | - | - | (437,102) |
| 44 | Less: Accumulated Amortization | 74,970 x | - | - | 74,970 |
| 45 | Net CIAC (L25 - L26) | (362,132) x | - | - | (362,132) |
| 46 | Total Advances and Contributions | (768,776) x | - | - | (768,776) |
| 47 | Customer Deposits | - | - | - | - |
| 48 | Meter Advances | - | - | - | - |
| 49 | Deferred Income Tax Credits | (504,369) x | - | - | (504,369) |
| <u>ADD:</u> | | | | | |
| 50 | Working Capital Allowance | 32,202 x | - | (58,469) | (26,267) |
| 51 | Phoenix Office Allocation | 197,345 x | - | - | 197,345 |
| 52 | Meter Shop Allocation | 3,665 x | - | - | 3,665 |
| 53 | Projected Capital Expenditures | - | - | - | - |
| 54 | Deferred Debits | - | - | - | - |
| 55 | Other Additions | - | - | - | - |
| 56 | Total Rate Base | \$ 3,817,510 | \$ (1,046,011) | \$ (58,469) | \$ 2,713,030 |

RATE BASE ADJUSTMENT NO. 1 - DEFERED CAP M&I CHARGES

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|----------|-------------------------------------|---------------------|-----------------------|-------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Deferred CAP M&I Charges | \$ 1,046,011 | \$ (1,046,011) | \$ - |
| 2 | <i>Post-Test Year Plant</i> | \$ - | \$ - | \$ - |
| 3 | <i>Post Test Year Retired Plant</i> | \$ - | \$ - | \$ - |
| 4 | Adjusted Test Year Plant | \$ 1,046,011 | \$ (1,046,011) | \$ - |

To eliminated deferred M&I charges because the CAP water is not being delivered and therefore not a useful.

Adjustments:

Column [A]: Company Schedule

Column [B]: Testimony (REL)

Column [C]: Column (A) plus or minus column (B)

Arizona Water Company - Coolidge
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Test Year Ended December 31, 2003

Schedule REL- 6

OPERATING INCOME ADJUSTMENT NO. 2 - CASH WORKING CAPITAL

| LINE NO. | DESCRIPTION | (A) | (B) | (C) |
|----------|----------------------------------|------------------|--------------------|--------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENT | STAFF AS ADJUSTED |
| 1 | Cash Working Capital | \$ (14,437) | \$ (58,469) | \$ (72,906) |
| 2 | Materials and Supplies Inventory | (533) | - | (533) |
| 3 | Required Bank Balances | 28,594 | - | 28,594 |
| 4 | Prepayments and Special Deposits | 18,577 | - | 18,577 |
| 5 | Total | <u>\$ 32,201</u> | <u>\$ (58,469)</u> | <u>\$ (26,268)</u> |

OPERATING INCOME - TEST YEAR AND STAFF PROPOSED

| LINE NO. | DESCRIPTION | [A] COMPANY TEST YEAR AS FILED | [B] STAFF TEST YEAR ADJUSTMENTS | [C] STAFF TEST YEAR AS ADJUSTED | [D] STAFF PROPOSED CHANGES | [E] STAFF RECOMMENDED |
|----------------------------|--|---|--|---|-------------------------------------|-----------------------------|
| REVENUES: | | | | | | |
| 1 | Total Operating Revenues | \$ 1,427,285 | \$ - | \$ 1,427,285 | \$ 123,891 | \$ 1,551,176 |
| EXPENSES: | | | | | | |
| Source of Supply Expenses: | | | | | | |
| 2 | Purchased Water | \$ 56,000 | \$ (56,000) | \$ - | \$ - | \$ - |
| 3 | Other | 7,914 | - | 7,914 | - | 7,914 |
| Pumping Expenses: | | | | | | |
| 4 | Purchased Power | 97,408 | 283 | 97,691 | - | 97,691 |
| 5 | Purchased Gas | 603 | - | 603 | - | 603 |
| 6 | Other | 37,838 | - | 37,838 | - | 37,838 |
| 7 | Water Treatment Expenses | 13,267 | - | 13,267 | - | 13,267 |
| 8 | Transmission and Distribution Expenses | 196,681 | - | 196,681 | - | 196,681 |
| 9 | Customer Account Expenses | 191,070 | - | 191,070 | 290 | 191,360 |
| 10 | Sales Expenses | 259 | - | 259 | - | 259 |
| 11 | Administrative and General Expenses | 235,586 | (1,967) | 233,619 | - | 233,619 |
| 12 | Total Operation and Maintenance | \$ 836,626 | (57,684) | 778,942 | 290 | 779,232 |
| 13 | Depreciation and Amortization | 275,122 | - | 275,122 | - | 275,122 |
| 15 | Ad Valorem (Property) | 127,110 | (10,594) | 116,516 | - | 116,516 |
| Taxes: | | | | | | |
| 14 | Federal & State Income Tax | 63,113 | 3,447 | 66,560 | 47,709 | 114,269 |
| 16 | Other | 24,577 | - | 24,577 | - | 24,577 |
| 17 | Total Operating Expenses | \$ 1,326,548 | \$ (64,830) | \$ 1,261,718 | \$ 47,999 | \$ 1,309,716 |
| 18 | Operating Income (Loss) | \$ 100,737 | \$ 64,830 | \$ 165,567 | \$ 75,892 | \$ 241,460 |

Arizona Water Company - Coolidge
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SUMMARY OF OPERATING INCOME ADJUSTMENTS - TEST YEAR

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ #1 | [C] ADJ #2 | [D] ADJ #3 | [E] ADJ #5 | [F] ADJ #7 | [G] ADJ #8 | [H] ADJ #9 | [I] STAFF ADJUSTED |
|----------|--|----------------------------|--------------------|-----------------|-------------------|-----------------|--------------------|-------------------|-------------------|--------------------------|
| 1 | <u>REVENUES:</u> Total Operating Revenues | \$ 1,427,285 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 1,427,285 |
| | <u>EXPENSES:</u> | | | | | | | | | |
| | Source of Supply Expenses: | | | | | | | | | |
| 2 | Purchased Water | \$ 56,000 | \$ (56,000) | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 7,914 |
| 3 | Other | 7,914 | - | - | - | - | - | - | - | - |
| | Pumping Expenses: | | | | | | | | | |
| 4 | Purchased Power | 97,408 | - | 283 | - | - | - | - | - | 97,691 |
| 5 | Purchased Gas | 603 | - | - | - | - | - | - | - | 603 |
| 6 | Other | 37,838 | - | - | - | - | - | - | - | 37,838 |
| 7 | Water Treatment Expenses | 13,267 | - | - | - | - | - | - | - | 13,267 |
| 8 | Transmission and Distribution Expenses | 196,681 | - | - | - | - | - | - | - | 196,681 |
| 9 | Customer Account Expenses | 191,070 | - | - | - | - | - | - | - | 191,070 |
| 10 | Sales Expenses | 259 | - | - | - | - | - | - | - | 259 |
| 11 | Administrative and General Expenses | 235,586 | - | - | (1,475) | (492) | - | - | - | 233,619 |
| 12 | Total Operation and Maintenance | 836,626 | (56,000) | 283 | (1,475) | (492) | - | - | - | 778,942 |
| 13 | Depreciation and Amortization | 275,122 | - | - | - | - | (10,594) | - | - | 275,122 |
| 15 | Ad Valorem (Property) | 127,110 | - | - | - | - | - | - | - | 116,516 |
| | Taxes: | | | | | | | | | |
| 14 | Federal & State Income Tax | 63,113 | - | - | - | - | - | (1,044) | 4,492 | 66,560 |
| 16 | Other | 24,577 | - | - | - | - | - | - | - | 24,577 |
| 17 | Total Operating Expenses | \$ 1,326,548 | \$ (56,000) | \$ 283 | \$ (1,475) | \$ (492) | \$ (10,594) | \$ (1,044) | \$ 4,492 | \$ 1,261,718 |
| 18 | Operating Income (Loss) | \$ 100,737 | \$ 56,000 | \$ (283) | \$ 1,475 | \$ 492 | \$ 10,594 | \$ 1,044 | \$ (4,492) | \$ 165,567 |

Arizona Water Company - Coolidge
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Test Year Ended December 31, 2003

Schedule REL-9

OPERATING INCOME ADJUSTMENT NO. 1 - PURCHASED WATER EXPENSE

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|-------------|-----------------|---------------------|----------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Purchased Water | \$ 56,000 | \$ (56,000) | \$ - |

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Schedule REL- 10

OPERATING INCOME ADJUSTMENT NO. 2 - PURCHASED PUMPING POWER EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|-------------------------|----------------------------|----------------------------|-----------------------------|
| 1 | Purchased Pumping Power | \$ 97,408 | \$ 283 | \$ 97,691 |

OPERATING INCOME ADJUSTMENT NO. 3 - RATE CASE EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|--|----------------------------|----------------------------|-----------------------------|
| 1 | Rate Case Expense for Eastern Group | \$ 253,550 | \$ (28,550) | \$ 225,000 |
| 2 | Allocation Factor | 0.15500 | | 0.15500 |
| 3 | Annual Rate Case Expense for Eastern Group | \$ 39,300 | \$ (4,425) | \$ 34,875 |
| 4 | Number of Years Amortized | 3 | | 3 |
| 5 | Annual Rate Case Expense | \$ 13,100 | \$ (1,475) | \$ 11,625 |

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Schedule REL-12

OPERATING INCOME ADJUSTMENT NO. 4 - CHARITABLE CONTRIBUTIONS

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|-------------|---|---------------------|----------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Charitable Contributions, Gifts, Awards, Etc. | \$ 7,923 | \$ (492) | \$ 7,431 |

OPERATING INCOME ADJUSTMENT NO. 5 - PROPERTY TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTMENT |
|----------|--|----------------------------|----------------------------|-------------------------------|
| 1 | 2002 Annual Gross Revenues | | | \$ 1,544,584 |
| 2 | 2003 Annual Gross Revenues | | | \$ 1,427,285 |
| 3 | 2004 Annual Gross Revenues | | | \$ 1,583,163 |
| 4 | Plus Staff's Recommended Increase | | | \$ 123,891 |
| 5 | Subtotal (Lines 1 + 2 + 3 + 4) | | | \$ 4,678,923 |
| 6 | Three Year Average Calculation | | | 3 |
| 7 | Three Year Average (Line 5 / Line 6) | | | \$ 1,559,641 |
| 8 | Department of Revenue Multiplier | | | 2 |
| 9 | Revenue Base Value (Line 7 x Line 8) | | | \$ 3,119,282 |
| 10 | Plus: 10% of 2001 CWIP | | | 12,794.00 |
| 11 | Less: Net Book Value of Leased Vehicles (See Note A Below) | | | \$ 38,379 |
| 12 | Full Cash Value (Line 9 + Line 10 - Line 11) | | | \$ 3,093,697 |
| 13 | Assessment Ratio | | | 0.25 |
| 14 | Assessed Value (Line 12 x Line 13) | | | \$ 773,424 |
| 15 | Composite Property Tax Rate (See Note B Below) | | | 0.15065 |
| 16 | Staff Proposed Property Tax Expense (Line 14 x Line 15) | \$ 127,110 | \$ (10,594) | \$ 116,516 |

Note A: Net Book Value of Licensed Vehicles provided by Arizona Water.

Note B: Property tax rate provided by Arizona Dept. of Revenue.

OPERATING INCOME ADJUSTMENT NOS. 6 and 7 - INCOME TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|----------------------|----------------------------|----------------------------|-----------------------------|
| 1 | Federal Income Taxes | \$ 55,589 | \$ (1,044) | \$ 54,545 |
| 2 | State Income Taxes | 7,524 | 4,492 | 12,016 |
| 3 | Total Income Taxes | <u>\$ 63,113</u> | <u>\$ 3,447</u> | <u>\$ 66,560</u> |

Arizona Water Company - Ajo
 Docket No. W-01445A-04-0650
 Test Year Ended December 31, 2003

Schedule REL-1

REVENUE REQUIREMENT

| <u>LINE NO.</u> | <u>DESCRIPTION</u> | <u>[A] COMPANY ORIGINAL COST</u> | <u>[B] STAFF ORIGINAL COST</u> |
|-----------------|--|--|--|
| 1 | Adjusted Rate Base | \$ 847,167 x | \$ 837,088 |
| 2 | Adjusted Operating Income (Loss) | \$ 34,697 | \$ 35,675 |
| 3 | Current Rate of Return (L2 / L1) | 4.10% | 4.26% |
| 4 | Required Rate of Return | 10.5000% | 8.9000% |
| 5 | Required Operating Income (L4 * L1) | \$ 88,953 | \$ 74,501 |
| 6 | Operating Income Deficiency (L5 - L2) | \$ 54,256 | \$ 38,826 |
| 7 | Gross Revenue Conversion Factor | 1.63245 | 1.63246 |
| 8 | Increase In Gross Revenue (L7 * L6) | \$ 88,569 | \$ 63,382 |
| 9 | Adjusted Test Year Revenue | \$ 412,203 | \$ 412,203 |
| 10 | Proposed Annual Revenue (L8 + L9) Note A | \$ 500,772 | \$ 475,585 |
| 11 | Require Increase in Revenue (%) (L8/L9) | 21.49% | 15.38% |

GROSS REVENUE CONVERSION FACTOR

Line
No.

Calculation of Gross Revenue Conversion Factor:

| | | |
|--|-----------|------------------------|
| 1 Recommended Revenue Increase: | | |
| 2 Billings | | 1.000000 |
| 3 Combined Federal and State Income Tax Rate | 38.59888% | |
| 4 Uncollectible Rate After Income Taxes | 0.14374% | |
| 5 Total Tax Rate | | <u>38.74262%</u> |
| 6 Gross Revenue Conversion Factor | | <u><u>1.632456</u></u> |

Calculation of Effective Income Tax Rate:

| | |
|--|-------------------------|
| 7 Operating Income Before Taxes (Arizona Taxable Income) | 100.00000% |
| 8 Arizona State Income Tax Rate | <u>6.96800%</u> |
| 9 Federal Taxable Income (L5 - L6) | <u>93.03200%</u> |
| 10 Applicable Federal Income Tax Rate (Line 32) | <u>34.00000%</u> |
| 11 Effective Federal Income Tax Rate (L7 x L8) | <u>31.63088%</u> |
| 12 Combined Federal and State Income Tax Rate (L6 +L9) | <u><u>38.59888%</u></u> |

Calculation of Uncollectible Rate After Income Taxes:

| | | |
|---|-----------|------------------------|
| 13 Uncollectible Rate | | 0.23410% |
| 14 Combined Federal and State Income Tax Rate | 38.59888% | |
| 15 1 minus Combined Federal and State Income Tax Rate | | <u>61.40112%</u> |
| 16 Uncollectible Rate After Income Taxes | | <u><u>0.14374%</u></u> |

Revenue Reconciliation:

| | | |
|---|-------------------------|--------|
| 17 Recommended Increase in Revenue (from REL-1, L8) | \$ 63,382 | |
| 18 Uncollectible Rate | 0.234100% | |
| 19 Required Increase in Revenue to Provide for Uncollectibles | \$ 148 | |
| 20 Recommended Increase in Revenue (from REL-1,L8) | \$ 63,382 | |
| 21 Required Increase in Revenue to Provide for Uncollectibles | 148 | |
| 22 Incremental Taxable Income | \$ 63,233 | |
| 23 Combined Federal and State Income Tax Rate | 38.59888% | |
| 24 Required Increase in Revenue to Provide for Income Taxes | | 24,407 |
| 25 Required Operating Income | \$ 74,501 | |
| 26 Adjusted Test Year Operating Income (Loss) | <u>35,675</u> | |
| 27 Required Increase in Operating Income | | 38,826 |
| 28 Total Required Increase In Revenue | <u><u>\$ 63,382</u></u> | |

Calculation of Income Tax:

| | Test Year | STAFF Recommended | |
|--|------------------|----------------------|--|
| 29 Revenue | \$ 412,203 | \$ 475,585 | |
| 30 Less: Operating Expenses Excluding Income Taxes | \$ 365,678 | \$ 365,827 | |
| 31 Less: Synchronized Interest | \$ 18,416 | \$ 18,416 | |
| 32 Arizona Taxable Income | \$ 28,109 | \$ 91,342 | |
| 33 Arizona State Income Tax Rate | 6.968% | 6.968% | |
| 34 Arizona Income Tax | \$ 1,959 | \$ 6,365 | |
| 35 Federal Taxable Income | \$ 26,150 | \$ 84,977 | |
| 36 Federal Income Tax @ 34% | \$ 8,891 | \$ 28,892 | |
| 37 Combined Federal and State Income Tax | <u>\$ 10,850</u> | <u>\$ 35,257</u> | |
| | | \$ 24,407 | |

Calculation of Interest Synchronization:

| | |
|----------------------------------|-------------------------|
| 38 Rate Base | \$ 837,088 |
| 39 Weighted Average Cost of Debt | <u>2.200%</u> |
| 40 Synchronized Interest | <u><u>\$ 18,416</u></u> |

RATE BASE - ORIGINAL COST

| LINE NO. | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENTS | (C) STAFF AS ADJUSTED |
|--------------|---|-----------------------------|--------------------------------|
| 1 | Plant in Service | \$ 1,656,478 | \$ 1,656,478 |
| 2 | Less: Accumulated Depreciation | (624,244) | (624,244) |
| 3 | Net Plant in Service | <u>\$ 1,032,234</u> x | <u>\$ 1,032,234</u> |
| <u>LESS:</u> | | | |
| 4 | Advances in Aid of Construction (AIAC) | (36,395) x | (36,395) |
| 5 | Contributions in Aid of Construction (CIAC) | \$ (41,263) | \$ (41,263) |
| 6 | Less: Accumulated Amortization | 10,797 | 10,797 |
| 7 | Net CIAC | <u>(30,466) x</u> | <u>(30,466)</u> |
| 8 | Total Advances and Contributions | (66,861) | (66,861) |
| 9 | Customer Deposits | - | - |
| 10 | Meter Advances | - | - |
| 11 | Deferred Income Tax Credits | (157,495) | (157,495) |
| <u>ADD:</u> | | | |
| 12 | Working Capital | (4,209) | (14,288) |
| 13 | Phoenix Office Allocation | 42,706 | 42,706 |
| 14 | Meter Shop Allocation | 792 | 792 |
| 15 | | - | - |
| 16 | | - | - |
| 17 | | - | - |
| 18 | Total Rate Base | <u>\$ 847,167</u> | <u>\$ 837,088</u> |

SUMMARY OF RATE BASE ADJUSTMENTS

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ No.1 | [C] STAFF ADJUSTED |
|--------------------------|--|----------------------------|-----------------|--------------------------|
| <u>PLANT IN SERVICE:</u> | | | | |
| 1 | Organization | \$ - | \$ - | \$ - |
| 2 | Franchises | - | - | - |
| 3 | Other Intangibles | - | - | - |
| 4 | Water Rights | 2,916 | - | 2,916 |
| 5 | Other Source of Supply Land | - | - | - |
| 6 | Wells | - | - | - |
| 7 | Pumping Plant Land | 3,208 | - | 3,208 |
| 8 | Pumping Plant Structures & Improvements | 3,015 | - | 3,015 |
| 9 | Electric Pumping Equipment | 74,000 | - | 74,000 |
| 10 | Gas Engine Equipment | - | - | - |
| 11 | Water Treatment Land | - | - | - |
| 12 | Water Treatment Structures & Improvmnts | - | - | - |
| 13 | Water Treatment Equipment | - | - | - |
| 14 | Transmission and Distribution Land | 6,065 | - | 6,065 |
| 15 | Storage Tanks | 160,356 | - | 160,356 |
| 16 | Transmission and Distribution Mains | 984,946 | - | 984,946 |
| 17 | Fire Sprinkler Taps | 104 | - | 104 |
| 18 | Services | 244,045 | - | 244,045 |
| 19 | Meters | 49,367 | - | 49,367 |
| 20 | Hydrants | 41,536 | - | 41,536 |
| 21 | General Plant Land | - | - | - |
| 22 | General Plant Structures | 46,411 | - | 46,411 |
| 23 | Leasehold Improvements | - | - | - |
| 24 | Office Furniture and Improvements | 9,381 | - | 9,381 |
| 25 | Warehouse Equipment | 193 | - | 193 |
| 26 | Tools, Shop and Garage Equipment | 8,362 | - | 8,362 |
| 27 | Laboratory Equipment | 2,103 | - | 2,103 |
| 28 | Power Operated Equipment | 3,234 | - | 3,234 |
| 29 | Communication Equipment | 16,468 | - | 16,468 |
| 30 | Miscellaneous Equipment | 768 | - | 768 |
| 31 | Total Plant in Service - Actual | 1,656,478 x | - | 1,656,478 |
| 32 | Pro-forma Adjustment - Post TY Plant | - | - | - |
| 33 | Accumulated Depreciation, Retired Plant | - | - | - |
| 34 | Total Plant in Service - Adjusted | \$ 1,656,478 | \$ - | \$ 1,656,478 |
| 35 | Less: Accumulated Depreciation - Actual | \$ (627,369) x | - | (627,369) |
| 36 | Less: Accumulated Depreciation - Post TY | 3,125 | - | 3,125 |
| 37 | Less: Accumulated Depreciation - 12 Mos TY | - | - | - |
| 38 | Less: Accumulated Depreciation - Retired Plant | - | - | - |
| 39 | Total Accumulated Depreciation - Adjusted | \$ (624,244) x | \$ - | \$ (624,244) |
| 40 | Plus: Construction Work In Progress | - | - | - |
| 41 | Net Plant in Service | \$ 1,032,234 x | \$ - | \$ 1,032,234 |
| <u>LESS:</u> | | | | |
| 42 | Advances in Aid of Construction (AIAC) | \$ (36,395) x | \$ - | (36,395) |
| 43 | Contributions in Aid of Construction (CIAC) | (41,263) x | - | (41,263) |
| 44 | Less: Accumulated Amortization | 10,797 x | - | 10,797 |
| 45 | Net CIAC (L25 - L26) | (30,466) x | - | (30,466) |
| 46 | Total Advances and Contributions | (66,861) x | - | (66,861) |
| 47 | Customer Deposits | - | - | - |
| 48 | Meter Advances | - | - | - |
| 49 | Deferred Income Tax Credits | (157,495) x | - | (157,495) |
| <u>ADD:</u> | | | | |
| 50 | Working Capital Allowance | (4,209) x | (10,079) | (14,288) |
| 51 | Phoenix Office Allocation | 42,706 x | - | 42,706 |
| 52 | Meter Shop Allocation | 792 x | - | 792 |
| 53 | Projected Capital Expenditures | - | - | - |
| 54 | Deferred Debits | - | - | - |
| 55 | Other Additions | - | - | - |
| 56 | Total Rate Base | \$ 847,167 | \$ (10,079) | \$ 837,088 |

Arizona Water Company - Ajo
Docket No. W-01445A-04-0650
Test Year Ended December 31, 2003

Schedule REL- 5

OPERATING INCOME ADJUSTMENT NO. 1 - CASH WORKING CAPITAL

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|----------------------------------|----------------------------|----------------------------|-----------------------------|
| 1 | Cash Working Capital | \$ (17,417) | \$ (10,079) | \$ (27,496) |
| 2 | Materials and Supplies Inventory | 3,000 | - | 3,000 |
| 3 | Required Bank Balances | 6,188 | - | 6,188 |
| 4 | Prepayments and Special Deposits | 4,020 | - | 4,020 |
| 5 | Total | <u>\$ (4,209)</u> | <u>\$ (10,079)</u> | <u>\$ (14,288)</u> |

OPERATING INCOME - TEST YEAR AND STAFF PROPOSED

| LINE NO. | DESCRIPTION | [A] COMPANY TEST YEAR AS FILED | [B] STAFF TEST YEAR ADJUSTMENTS | [C] STAFF TEST YEAR AS ADJUSTED | [D] STAFF PROPOSED CHANGES | [E] STAFF RECOMMENDED |
|----------------------------|--|---|--|---|-------------------------------------|-----------------------------|
| <u>REVENUES:</u> | | | | | | |
| 1 | Total Operating Revenues | \$ 412,203 | \$ - | \$ 412,203 | \$ 63,382 | \$ 475,585 |
| <u>EXPENSES:</u> | | | | | | |
| Source of Supply Expenses: | | | | | | |
| 2 | Purchased Water | \$ 162,114 | \$ - | \$ 162,114 | \$ - | \$ 162,114 |
| 3 | Other | 316 | - | 316 | - | 316 |
| Pumping Expenses: | | | | | | |
| 4 | Purchased Power | 2,976 | - | 2,976 | - | 2,976 |
| 5 | Purchased Gas | - | - | - | - | - |
| 6 | Other | 14,594 | - | 14,594 | - | 14,594 |
| 7 | Water Treatment Expenses | 3,443 | - | 3,443 | - | 3,443 |
| 8 | Transmission and Distribution Expenses | 38,687 | - | 38,687 | - | 38,687 |
| 9 | Customer Account Expenses | 27,613 | - | 27,613 | 148 | 27,761 |
| 10 | Sales Expenses | 142 | - | 142 | - | 142 |
| 11 | Administrative and General Expenses | 45,617 | (465) | 45,152 | - | 45,152 |
| 12 | Total Operation and Maintenance | \$ 295,502 | (465) | 295,037 | 148 | 295,186 |
| 13 | Depreciation and Amortization | 39,981 | - | 39,981 | - | 39,981 |
| 15 | Ad Valorem (Property) | 27,099 | (198) | 26,901 | - | 26,901 |
| Taxes: | | | | | | |
| 14 | Federal & State Income Tax | 11,165 | (315) | 10,850 | 24,407 | 35,257 |
| 16 | Other | 3,759 | - | 3,759 | - | 3,759 |
| 17 | Total Operating Expenses | \$ 377,506 | \$ (978) | \$ 376,528 | \$ 24,556 | \$ 401,084 |
| 18 | Operating Income (Loss) | \$ 34,697 | \$ 978 | \$ 35,675 | \$ 38,826 | \$ 74,501 |

Arizona Water Company - Ajo
 Docket No. W-01445A-04-0650
 Test Year Ended December 31, 2003

SUMMARY OF OPERATING INCOME ADJUSTMENTS - TEST YEAR

| LINE NO. | DESCRIPTION | [A] COMPANY AS FILED | [B] ADJ #1 | [C] ADJ #2 | [D] ADJ #3 | [E] ADJ #4 | [F] ADJ #5 | [G] ADJ #6 | [H] STAFF ADJUSTED |
|----------|--|-------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|---------------|-----------------------|
| 1 | REVENUES: Total Operating Revenues | \$ 412,203 x | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 412,203 |
| | EXPENSES: | | | | | | | | |
| | Source of Supply Expenses: | | | | | | | | |
| 2 | Purchased Water | \$ 162,114 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 162,114 |
| 3 | Other | 316 | - | - | - | - | - | - | 316 |
| | Pumping Expenses: | | | | | | | | |
| 4 | Purchased Power | 2,976 | - | - | - | - | - | - | 2,976 |
| 5 | Purchased Gas | - | - | - | - | - | - | - | - |
| 6 | Other | 14,594 | - | - | - | - | - | - | 14,594 |
| 7 | Water Treatment Expenses | 3,443 | - | - | - | - | - | - | 3,443 |
| 8 | Transmission and Distribution Expenses | 38,687 | - | - | - | - | - | - | 38,687 |
| 9 | Customer Account Expenses | 27,613 | - | - | - | - | - | - | 27,613 |
| 10 | Sales Expenses | 142 | - | - | - | - | - | - | 142 |
| 11 | Administrative and General Expenses | 45,617 | (319) | (146) | - | - | - | - | 45,152 |
| 12 | Total Operation and Maintenance | 295,502 x | (319) | (146) | - | - | - | - | 295,037 |
| 13 | Depreciation and Amortization | 39,981 | - | - | - | - | - | - | 39,981 |
| 15 | Ad Valorem (Property) | 27,099 | - | - | (198) | - | - | - | 26,901 |
| | Taxes: | | | | | | | | |
| 14 | Federal & State Income Tax | 11,165 | - | - | - | (865) | 550 | - | 10,850 |
| 16 | Other | 3,759 | - | - | - | - | - | - | 3,759 |
| 17 | Total Operating Expenses | \$ 377,506 x | \$ (319) | \$ (146) | \$ (198) | \$ (865) | \$ 550 | \$ - | \$ 376,528 |
| 18 | Operating Income (Loss) | \$ 34,697 x | \$ 319 | \$ 146 | \$ 198 | \$ 865 | \$ (550) | \$ - | \$ 35,675 |

Arizona Water Company - Ajo
 Docket No. W-01445A-04-0650
 Test Year Ended December 31, 2003

Schedule REL- 8

OPERATING INCOME ADJUSTMENT NO. 1 - RATE CASE EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|--|----------------------------|----------------------------|-----------------------------|
| 1 | Rate Case Expense for Eastern Group | \$ 253,550 | \$ (28,550) | \$ 225,000 |
| 2 | Allocation Factor | 0.03350 | | 0.03350 |
| 3 | Annual Rate Case Expense for Eastern Group | \$ 8,494 | \$ (956) | \$ 7,538 |
| 4 | Number of Years Amortized | 3 | | 3 |
| 5 | Annual Rate Case Expense | \$ 2,831 | \$ (319) | \$ 2,513 |

Arizona Water Company - Ajo
Docket No. W-01445A-04-0650
Test Year Ended December 31, 2003

Schedule REL-9

OPERATING INCOME ADJUSTMENT NO. 2 - CHARITABLE CONTRIBUTIONS

| LINE NO. | DESCRIPTION | [A] | [B] | [C] |
|-------------|---|---------------------|----------------------|----------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENTS | STAFF AS ADJUSTED |
| 1 | Charitable Contributions, Gifts, Awards, Etc. | \$ 770 | \$ (146) | \$ 624 |

OPERATING INCOME ADJUSTMENT NO. 3 - PROPERTY TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) | (B) | (C) |
|----------|--|------------------|------------------|---------------------|
| | | COMPANY AS FILED | STAFF ADJUSTMENT | STAFF AS ADJUSTMENT |
| 1 | 2002 Annual Gross Revenues | | | \$ 460,666 |
| 2 | 2003 Annual Gross Revenues | | | \$ 412,203 |
| 3 | 2004 Annual Gross Revenues | | | \$ 457,383 |
| 4 | Plus Staff's Recommended Increase | | | \$ 63,382 |
| 5 | Subtotal (Lines 1 + 2 + 3 + 4) | | | \$ 1,393,634 |
| 6 | Three Year Average Calculation | | | 3 |
| 7 | Three Year Average (Line 5 / Line 6) | | | \$ 464,545 |
| 8 | Department of Revenue Multiplier | | | 2 |
| 9 | Revenue Base Value (Line 7 x Line 8) | | | \$ 929,089 |
| 10 | Plus: 10% of 2001 CWIP | | | 3 |
| 11 | Less: Net Book Vaule of Leased Vehicles (See Note A Below) | | | \$ 664 |
| 12 | Full Cash Value (Line 9 + Line 10 - Line 11) | | | \$ 928,428 |
| 13 | Assessment Ratio | | | 0.25 |
| 14 | Assessed Value (Line 12 x Line 13) | | | \$ 232,107 |
| 15 | Composite Property Tax Rate (See Note B Below) | | | 0.1159 |
| 16 | Staff Proposed Property Tax Expense (Line 14 x Line 15) | \$ 27,099 | \$ (198) | \$ 26,901 |

Note A: Net Book Value of Licensed Vehicles provided by Arizona Water.

Note B: Property tax rate provided by Arizona Dept. of Revenue.

Arizona Water Company - Ajo
Docket No. W-01445A-04-0650
Test Year Ended December 31, 2003

Schedule REL- 11

OPERATING INCOME ADJUSTMENT NO. 4 and 5 - INCOME TAX EXPENSE

| LINE NO. | DESCRIPTION | (A) COMPANY AS FILED | (B) STAFF ADJUSTMENT | (C) STAFF AS ADJUSTED |
|----------|----------------------|----------------------------|----------------------------|-----------------------------|
| 1 | Federal Income Taxes | \$ 9,756 | \$ (865) | \$ 8,891 |
| 2 | State Income Taxes | 1,409 | 550 | 1,959 |
| 3 | Total Income Taxes | <u>\$ 11,165</u> | <u>\$ (315)</u> | <u>\$ 10,850</u> |

HAMMON

BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
KRISTIN K. MAYES
Commissioner

IN THE MATTER OF THE APPLICATION OF)
ARIZONA WATER COMPANY, AN ARIZONA)
CORPORATION, FOR ADJUSTMENTS TO ITS)
RATES AND CHARGES FOR UTILITY)
SERVICE FURNISHED BY ITS WESTERN)
GROUP AND FOR CERTAIN RELATED)
APPROVALS)

DOCKET NO. W-01445A-04-0650

DIRECT
TESTIMONY
OF
LYNDON R. HAMMON
UTILITIES ENGINEER
UTILITIES DIVISION

APRIL 18, 2005

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**EXECUTIVE SUMMARY
ARIZONA WATER COMPANY
DOCKET NO. W-01445A-04-0650**

- (1) The Arizona Department of Environmental Quality (“ADEQ”) reported that all six water systems are in **total** compliance with its rules and regulations. ADEQ determined that all six systems are currently delivering water that meets State and Federal drinking water quality standards required by the Arizona Administrative Code, Title 18, Chapter 4.
- (2) Staff recommends the adoption in this rate case of the previously approved depreciation schedule presented on page 18 of Mr. Ralph Kennedy’s direct testimony. *(Staff recommends that this should be addressed by an ordering paragraph in the final Decision and Order.)*
- (3) Expense Adjustments:
 - (a) The Company’s water testing expense for the Western Group was at or below Staff’s expectation based upon usual and customary water testing methodology and expenses. Staff recommends acceptance of the Company’s water testing expense (Adjustment No. 12 in Schedule C-2 of original application).
 - (b) Staff recommends acceptance of the Company’s expense adjustment for tank maintenance (Adjustment No. 13 in Schedule C-2 of original application).
- (4) Tariffs:
 - (a) Staff recommends that the MA-262 tariff, “Monitoring Assistance Program Surcharge”, (“MAP”) be revised, company-wide, to conform with the new DEQ, MAP fee structure. Staff also recommends that the revised MA-262 tariff be filed with the Director of the Utilities Division for review and certification, and the filing of that revised tariff shall be made within 60 days of a decision in this matter, but no later than the Company’s annual surcharge calculation for each water system participating in MAP. *(Staff recommends that this should be addressed by an ordering paragraph in the final Decision and Order.)*
 - (b) Staff recommends that Arizona Water Company file a new Non-Potable Central Arizona Project Water tariff for Casa Grande, Coolidge, and White Tanks within 60 days of the date of a final decision in this rate case. The new tariff shall conform to the new Apache Junction Non-Potable Central Arizona Project Water tariff, which was approved pursuant to Decision No. 66849. *(Staff recommends that this should be addressed by an ordering paragraph in the final Decision and Order.)*

1 **INTRODUCTION**

2 **Q. Please state your name and place of employment.**

3 A. My name is Lyndon R. Hammon. My place of employment is the Arizona Corporation
4 Commission ("Commission"), Utilities Division, 1200 West Washington Street, Phoenix,
5 Arizona 85007.

6
7 **Q. Please list your duties and responsibilities and provide your title.**

8 A. I am employed as a Utilities Engineer, specializing in water and wastewater engineering.
9 My responsibilities include: the inspection, investigation, and evaluation of water and
10 wastewater systems; obtaining data and preparing original cost studies and investigative
11 reports; providing technical recommendations and suggesting corrective action for water
12 and wastewater systems; and providing written and oral testimony on rate applications
13 and other cases before the Commission.

14
15 **Q. Briefly describe your pertinent educational background and work experience.**

16 A. I have a Bachelor of Science Degree in Chemical Engineering from the University of
17 Missouri at Rolla. After graduation, I was employed by the Skelly Oil Company as a
18 process and environmental engineer. In 1973, I joined the Arizona Department of Health
19 Services, which later became the Arizona Department of Environmental Quality
20 ("DEQ"). My responsibilities with DEQ included approval and inspection for the
21 construction of water and wastewater facilities, and the issuance of discharge permits. I
22 remained with DEQ until transferring to the Commission in January 1993.

23
24 **Q. Do you maintain any professional registrations or memberships?**

25 A. I am a licensed professional engineer in the State of Arizona. I am also a member of the
26 Arizona Water and Pollution Control Federation.

1 **Q. Were you assigned to provide an engineering analysis and recommendation for the**
2 **Arizona Water Company, Western Group (“Arizona Water” or “Company”)?”**

3 A. Yes. I reviewed the Company’s application and responses to data requests. I visited the
4 water systems during January and February 2005. My testimony will present the findings
5 of my engineering evaluation.
6

7 **DESCRIPTION OF THE WATER SYSTEMS**

8 **Q. Please describe the water systems.**

9 A. The Western Group consists of five independent water systems and one consecutive
10 water system. (A consecutive water system is a public water system, which accepts water
11 from another public water system and which has 15 or more service connections.) They
12 are listed below in Table I. “PWS ID No.” means public water system identification
13 number, which is a state and federal designation, unique to the water system.

14 Table I
15

| | PWS ID No. | Services | Approx. service area (sq. miles) |
|-----------------|------------|----------|-------------------------------------|
| Casa Grande | 11-009 | 14,650 | 120 |
| Tierra Grande | 11-076 | 350 | included in Casa Grande |
| Stanfield | 11-012 | 220 | 40 |
| White Tanks | 07-128 | 1,340 | 10 |
| Coolidge | 11-014 | 3,050 | 20 |
| Ajo Heights (#) | 10-003 | 700 | 130 |

16 (#) consecutive system to Ajo Improvement Company, PWS ID No. 10-001
17

18 Simple process schematics are presented in Exhibits A-1 through A-4, attached to this
19 testimony. The schematics for Ajo are omitted due to their simplicity. Ajo has only two
20 storage tanks which float on the consecutive system. (“Floating” means that the storage
21 tanks are elevated and directly pressurize the water distribution zone.) All water systems
22 have adequate production and storage capacity to meet their respective needs.

1 **ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY COMPLIANCE**

2 **Q. Please discuss Arizona Water Company's compliance with the Arizona Department**
3 **of Environmental Quality ("DEQ") rules.**

4 A. DEQ reported that all six water systems are in **total** compliance with its rules and
5 regulations. DEQ determined that all six systems are currently delivering water that
6 meets State and Federal drinking water quality standards required by the Arizona
7 Administrative Code, Title 18, Chapter 4.

8
9 **DEPARTMENT OF WATER RESOURCES COMPLIANCE**

10 **Q. Please discuss Department of Water Resources ("DWR") Compliance.**

11 A. Casa Grande, Tierra Grande, Coolidge, and Stanfield are located in the Pinal Active
12 Management Areas ("AMA"). White Tanks is located within the Phoenix AMA. Ajo is
13 not located in any AMA and is not subject to conservation and reporting requirements.
14 At this time, the five systems within AMA's are only required to monitor and report their
15 water usage, and DWR reported that they are in compliance with those reporting
16 requirements.

17
18 **WATER USE**

19 **Q. Please discuss water use.**

20 A. Based on information provided by the Company, water use for 2003 is presented in
21 Exhibit B, for all six water systems. The annual average, the average during the peak
22 month, and the average during the minimum month are denoted as gallons per day per
23 service.

1 **Q. Please discuss non-account water.**

2 A. Based on information provided by the Company, non-account water is tabulated below
3 (for the period January 2003 through December 2003):

4

| <u>System</u> | <u>% non-account</u> |
|---------------|----------------------|
| Casa Grande | 8.4 % |
| Tierra Grande | 7.5 % |
| Stanfield | 6.8 % |
| White Tanks | 5.0 % |
| Coolidge | 9.5 % |
| Ajo Heights | 6.7 % |

5
6 The cost to obtain, treat, and pressurize is embedded in lost water. When water escapes
7 before it reaches the consumer, the utility loses revenue and incurs unnecessary expense.
8 Non-account water should be 10 percent or less and never more than 15 percent. All of
9 the water systems are within acceptable limits.

10
11 It is worth noting that Arizona Water Company takes water conservation and efficiency
12 seriously and has an extensive company-wide water loss control program. Monthly water
13 sales, non-revenue water, and water production are audited and monitored; there is a
14 program of meter testing and replacement; and the Company just recently purchased state
15 of the art, leak detecting correlators and loggers which will allow them to detect leaks and
16 then locate the source literally within inches.

17
18 **GROWTH**

19 **Q. Please discuss growth.**

20 A. Since the last rate case, 13 years ago, the growth rate has been about 5 to 6 per cent per
21 year for the Casa Grande and White Tanks water systems. Ajo, Stanfield, and Coolidge
22 have experienced static or very slow growth rates. Growth rates are worth discussing
23 because Pinal County and the western Phoenix metropolitan area have recently

1 experienced explosive residential growth and past history may not be a good predictor of
2 future population changes. Consequently, Casa Grande and the White Tanks water
3 systems could be poised for very rapid growth, depending on the continued strength of
4 the Arizona real estate market. While the Casa Grande and White Tanks systems have
5 adequate water production and storage now, the Company has plans to add an additional
6 well during 2005 in Casa Grande, and for the White Tanks system, the Company is
7 exploring the participation with a block of other investors in the construction of a Central
8 Arizona Project surface water treatment plant.

9
10 **DEPRECIATION RATES**

11 **Q. Please discuss depreciation rates for plant in service.**

12 A. In the previous rate case for the Eastern Group, Mr. Ralph Kennedy developed a
13 company-wide schedule of depreciation rates by National Association of Regulatory
14 Utility Commissioners ("NARUC") account. These rates were developed from Arizona
15 Water Company's internal equipment records, audits, or field experience, and represent
16 actual present service lives. Those Eastern Group depreciation rates were reasonable and
17 closely approximated the customary rates used by Staff. Those depreciation rates have
18 been carried forward and proposed in this rate application. Staff recommends the
19 adoption in this rate case of the previously approved depreciation schedule presented on
20 page 18 of Mr. Ralph Kennedy's direct testimony.

21
22 **EXPENSE ADJUSTMENTS – WATER TESTING**

23 **Q. Please describe the DEQ Monitoring Assistance Program ("MAP").**

24 A. On December 8, 1998, DEQ adopted rules which provide for a monitoring assistance
25 program. The MAP program was fully implemented in 1999. On October 16, 2001, rule
26 amendments were promulgated, which changed the fee structure and some sampling

1 protocol. Starting January 1, 2002, water companies began paying a fixed \$250 per year
2 fee, plus an additional fee of \$2.57 per service connection, regardless of meter size.
3 Participation in MAP is mandatory for all the water systems in the Western Group,
4 except Casa Grande. Although MAP fees usually provide a major portion of water
5 monitoring costs, not all testing and testing costs are covered by the program.
6

7 **Q. How did the Company treat MAP fees in this application?**

8 A. Essentially, in this application the Company backed out the MAP fees from the
9 appropriate expense line item with the understanding that the MAP fees will be recovered
10 later through a surcharge. Specifically, the MAP fees will be recovered by the Company
11 pursuant to existing Tariff MA-262, entitled "Monitoring Assistance Program
12 Surcharge". In October of each year, an annual filing is made with the Commission to
13 establish the surcharge amount.
14

15 **Q. What is Staff's recommendation for the MA-262 tariff, (MAP surcharge)?**

16 A. The MAP surcharge mechanism has been approved in the previous rate cases and Staff
17 has no objection to the preservation of this surcharge. However, the MA-262 tariff needs
18 to be up-dated to reflect regulatory changes. The present MA-262 tariff provides for the
19 recovery of fees based on a meter multiplier. Since the MAP fees are no longer based
20 upon meter size, the tariff should be revised, company-wide, to reflect the new DEQ fee
21 schedule (a fixed \$250 per year fee, plus an additional fee of \$2.57 per service
22 connection, regardless of meter size). Staff recommends that the MA-262 tariff,
23 "Monitoring Assistance Program Surcharge", be revised, company-wide, to conform with
24 the new DEQ, MAP fee structure. Staff also recommends that the revised MA-262 tariff
25 be filed with the Director of the Utilities Division for review and certification, and the
26 filing of that revised tariff shall be made within 60 days of a decision in this matter, but

1 no later than the Company's annual surcharge calculation for each water system
2 participating in MAP.
3

4 **Q. How did Staff evaluate water testing costs?**

5 A. Water testing costs are embedded in expense line item number 12, in the "C-2"
6 schedules. By using the Company's work paper and schedules, the specific expense
7 amount for water testing was derived. Staff then calculated an estimate of water testing
8 costs for each water system, based upon Staff's best knowledge of lab costs and
9 methodology. The Company's actual expense was then compared with Staff's estimated
10 water testing expense.
11

12 **Q. What is Staff's recommended accounting adjustment to the Company's water
13 testing expense?**

14 A. The Company's water testing expense for the Western Group was at or below Staff's
15 expectation based upon usual and customary water testing methodology and expenses.
16 Staff recommends acceptance of the Company's water testing expense (Adjustment No.
17 12 in Schedule C-2 of original application).
18

19 **EXPENSE ADJUSTMENTS – TANK MAINTENANCE**

20 **Q. Please discuss the Company's tank maintenance program.**

21 A. The Company has implemented a scheduled maintenance program for all storage and
22 pressure tanks. The interior of the tanks are abrasively cleaned to a near white and then
23 repainted. The exterior is either power washed or abrasively cleaned and then repainted.
24 The Company expects a 14 year life for the interiors and a 7 year life for the exteriors.

1 **Q. How did Staff evaluate tank maintenance costs?**

2 A. Tank maintenance costs are embedded in the transmission and distribution expense line
3 item number 13, in the "C-2" schedules. By using the Company's work paper and
4 schedules, the specific expense amount for tank maintenance was derived. Based on the
5 interior and exterior areas of the tank inventory, an estimate of the customary cost was
6 made using "Richardson Process Plant Construction Estimating Standards." The
7 Company's predicted expense was then compared with Staff's estimated tank
8 maintenance expense.

9
10 **Q. What are your conclusions concerning the tank maintenance adjustment?**

11 A. Staff's computed expense was comparable to the Company's and therefore, Staff accepts
12 the Company's proposed expense (Adjustment No. 13 in Schedule C-2 of original
13 application). As a side note, the maintenance account contains a component for "other"
14 maintenance, which includes cleaning and painting of piping, control panels, and other
15 miscellaneous equipment, maintenance of small structures, and grounds keeping. This
16 category represents actual expenses, and the Company is proposing no adjustment to the
17 "other" category, except for inflation.

18
19 **ARSENIC**

20 **Q. Has the drinking water standard for arsenic changed?**

21 A. The U.S. Environmental Protection Agency ("EPA") reduced the arsenic maximum
22 contaminant level ("MCL") in drinking water from 50 micrograms per liter ("µg/l") to 10
23 µg/l. The date for compliance with the new MCL is January 23rd, 2006.

1 **Q. Will the Western Group be facing arsenic problems?**

2 A. Based upon analytical data, it appears that Arizona Water Company will have to install
3 arsenic removal equipment at Casa Grande, Stanfield, and White Tanks. The Company
4 anticipates using a granular ferric hydroxide or granular ferric oxide adsorption process.
5 The Company is presently soliciting dual bids, for either purchase or lease, for the
6 equipment. Arsenic concentrations are listed for each well below.

7

| Water System | DWR Well Number | Arsenic Concentration micrograms per liter (µg/l) |
|---------------|-----------------|--|
| Casa Grande | 55-616595 | 9 |
| | 55-613443 | 12 |
| | 55-616601 | 21 |
| | 55-522319 | 22 |
| | 55-560803 | 52 |
| | 55-616603 | 16 |
| | 55-622167 | pending |
| | 55-503113 | 17 |
| | 55-568553 | 9 |
| | 55-616604 | 19 |
| | 55-540306 | 17 |
| | 55-546719 | 22 |
| | 55-571205 | 35 |
| | 55-595284 | 12 |
| Tierra Grande | 55-616683 | 8 |
| | 55-801030 | 7 |
| Stanfield | 55-616684 | 10 |
| | 55-526586 | 12 |
| White Tanks | 55-616689 | 11 |
| | 55-616691 | 12 |
| | 55-616693 | 7 |
| | 55-584393 | 45 |
| Coolidge | 55-616606 | 7 |
| | 55-616608 | 5 |
| | 55-616609 | 4 |
| | 55-616686 | 3 |
| | 55-616687 | 14 |

1 **Q. What is Staff recommending for the arsenic treatment costs in this rate case?**

2 A. No post test year plant or test year capital additions for arsenic are included in this rate
3 application, and there are no arsenic removal plants constructed and operating in the
4 Western Group. However, a company-wide accounting order has been approved by the
5 Commission for the deferral and recovery of operation and maintenance expenses for
6 arsenic treatment (Docket No W-01445A-04-0473). For the deferral and recovery of
7 capital costs, Staff will also be recommending an Arsenic Cost Recovery Mechanism
8 similar to those approved for the Northern and Eastern Groups.
9

10 **SPECIAL SERVICE TARIFFS**

11 **Q. Does Arizona Water Company have a curtailment tariff?**

12 A. Yes. A new Company-wide curtailment tariff was approved and implemented pursuant
13 to Decision No. 66849 from the 2003-2004 rate case for the Eastern Group. No new
14 filing is necessary at this time.
15

16 **TARIFF FOR NON-POTABLE CENTRAL ARIZONA PROJECT WATER**

17 **Q. What is the tariff for “Non-Potable Central Arizona Project Water” (“NP-260”).**

18 A. The NP-260 tariff provides the terms and conditions for non-potable Central Arizona
19 Project (“CAP”) water service. It was originally approved in March 1994 under Decision
20 No. 61579. Under this tariff, the customer accepts untreated CAP water for subsequent
21 non-potable use, generally landscape or golf course irrigation. Decision No. 65755
22 ordered the Utilities Division to “...review the NP-260 Tariff of Arizona Water Company
23 during the pending general rate application for its Apache Junction system and
24 recommend changes or revisions as required.” Pursuant to that Order, Staff reviewed the
25 NP-260 tariff during the Eastern Group rate case and made recommendations in that
26 proceeding (Docket No. W-01445-02-0619). The portion of Staff’s direct testimony,

1 which pertained to the old NP-260 tariff and Staff's recommendations, has been extracted
2 from the filing in the "...-02-0619" docket, and is attached to this direct testimony as
3 Exhibit C.
4

5 **Q. What changes did Staff recommend for the NP-260 in the eastern group rate case?**

6 A. Generally, Staff recommended these changes: eliminate the fixed meter charge; eliminate
7 the depreciation charge; indemnify customers from maintenance, repair or replacement
8 charges when the damage to CAP facilities is the result of the Company's error; continue
9 to require the customer to be responsible for repair or replacement of the meter; and
10 include fixed-dollar administrative charges representative of the Company's actual costs.
11

12 These recommendations were adopted by the Commission in the Eastern Group rate
13 decision (Decision No. 66849).
14

15 **Q. Given that the NP-260 changes were adopted in the previous rate case, why is this
16 an issue now?**

17 A. At the time of the Eastern Group rate case, the NP-260 tariff was applicable to the
18 Apache Junction, Casa Grande, Coolidge, and White Tank water systems. Since Casa
19 Grande, Coolidge, and White Tanks were not part of the Eastern Group, procedurally
20 only Apache Junction could be amended within the Eastern Group rate case. Therefore,
21 Arizona Water Company adopted the amended NP-260 tariff for Apache Junction, and
22 left the old NP-260 tariff in place for the Western Group systems (Casa Grande,
23 Coolidge, and White Tanks). A copy of the new Apache Junction Non-Potable CAP
24 Tariff (now re-numbered as NP-274), and a copy of the old NP-260 tariff are attached as
25 Exhibit D.

1 **STAFF RECOMMENDATIONS**

2 **Q. What does Staff recommend?**

3 A. This inconsistency and incongruity should be corrected. Therefore, Staff recommends
4 that Arizona Water Company file a new Non-Potable Central Arizona Project Water tariff
5 for Casa Grande, Coolidge, and White Tanks within 60 days of the date of a final
6 decision in this rate case. The new tariff shall conform to the new Apache Junction Non-
7 Potable Central Arizona Project Water tariff (now NP-274), which was approved
8 pursuant to Decision No. 66849.

9
10 **Q. Does this conclude your direct testimony?**

11 A. Yes, it does.

Arizona Water Company White Tanks

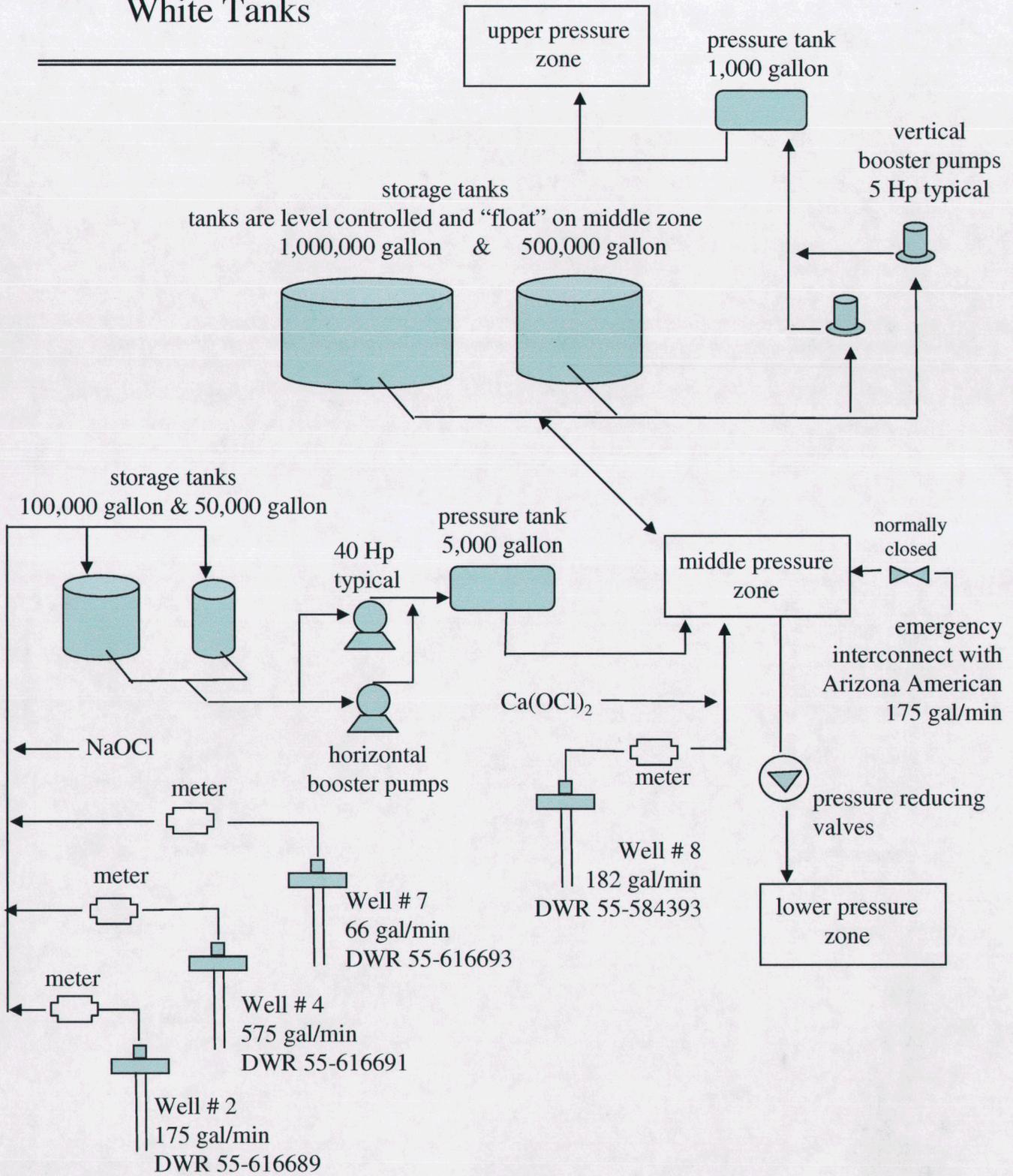
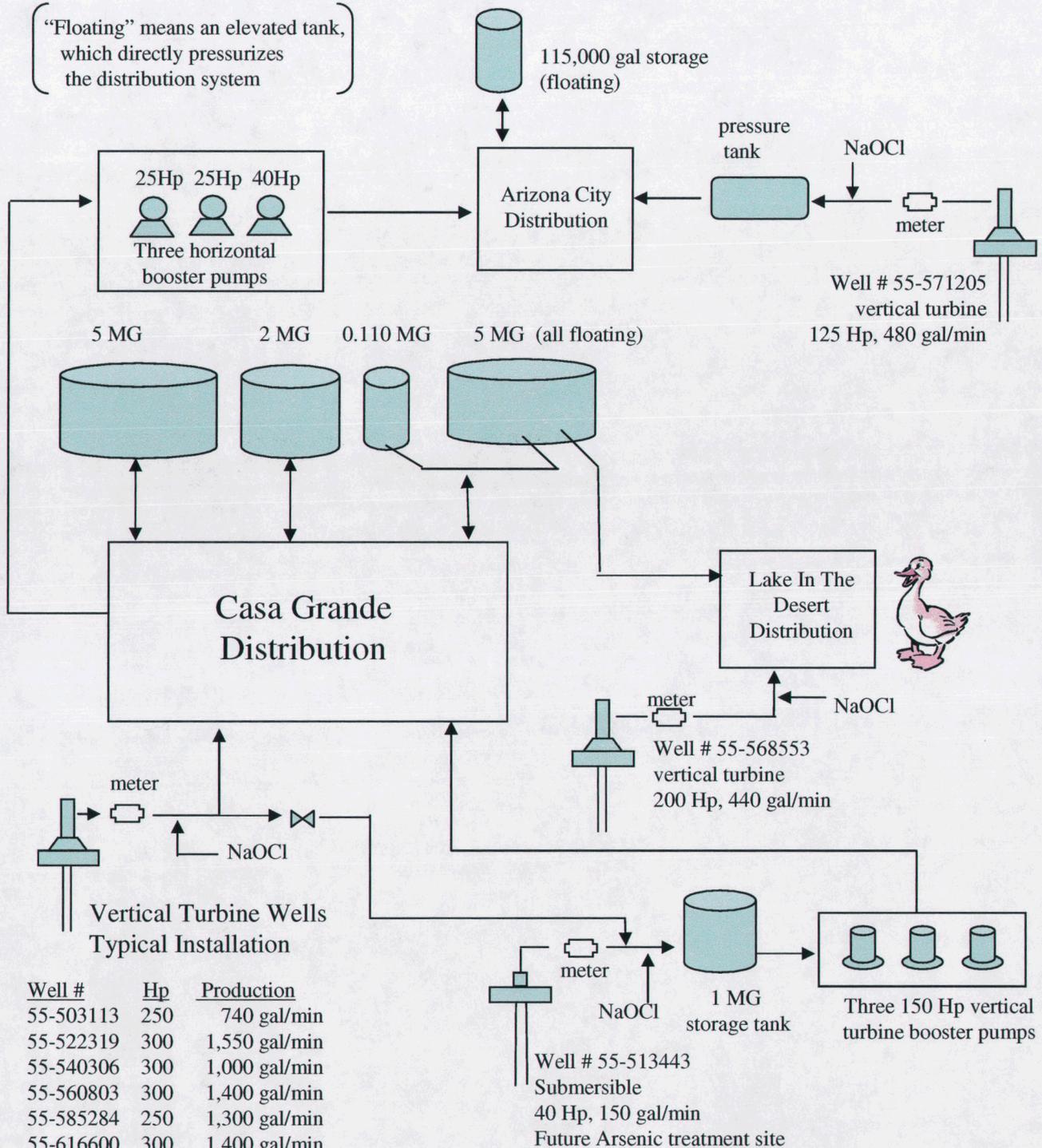


Exhibit A-1

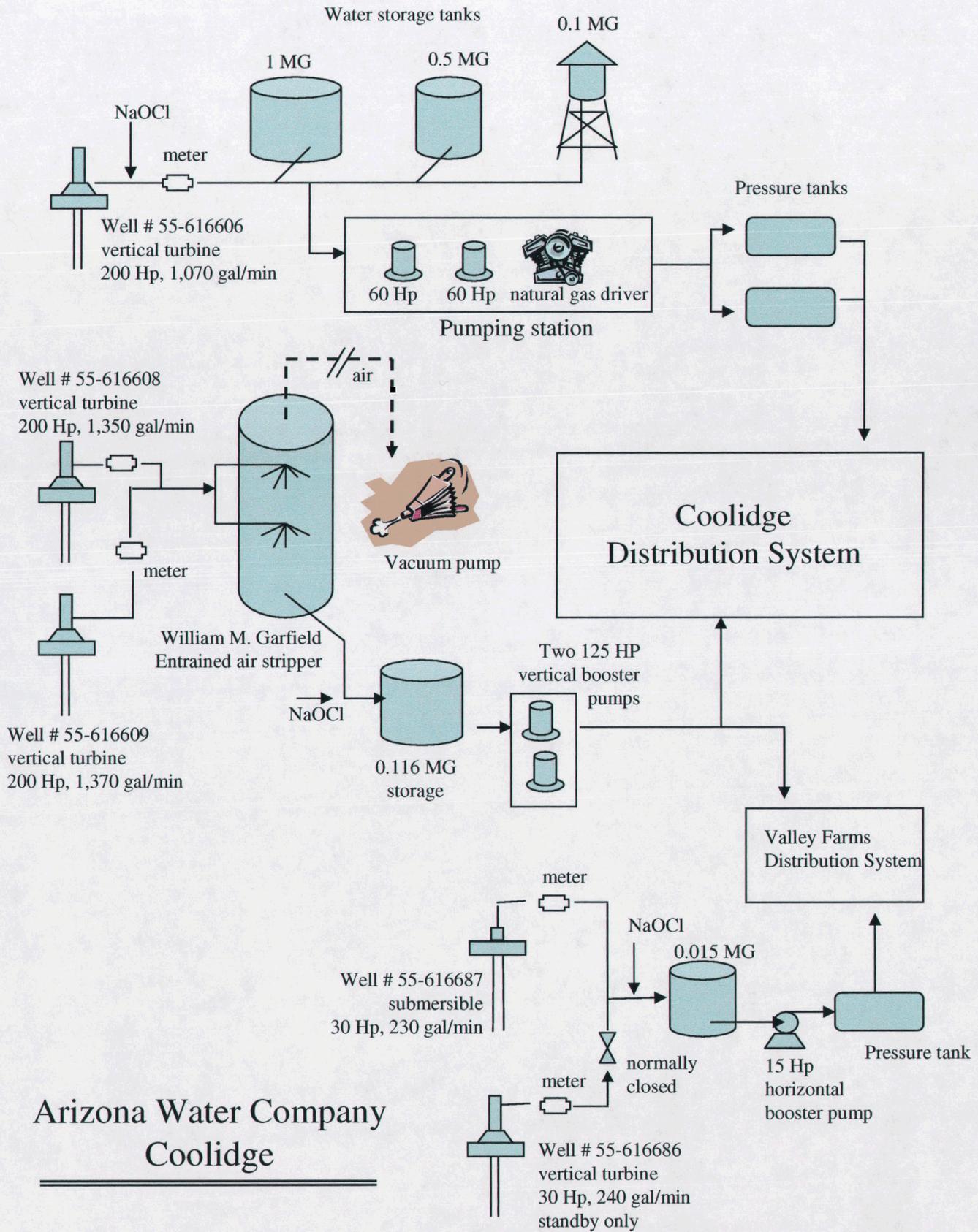
“Floating” means an elevated tank, which directly pressurizes the distribution system



| Well # | Hp | Production |
|-----------|-----|---|
| 55-503113 | 250 | 740 gal/min |
| 55-522319 | 300 | 1,550 gal/min |
| 55-540306 | 300 | 1,000 gal/min |
| 55-560803 | 300 | 1,400 gal/min |
| 55-585284 | 250 | 1,300 gal/min |
| 55-616600 | 300 | 1,400 gal/min |
| 55-616601 | 200 | 850 gal/min |
| 55-616603 | 300 | 1,560 gal/min --- Future Arsenic treatment site |
| 55-616604 | 300 | 1,300 gal/min |
| 55-622167 | 300 | 1,000 gal/min |
| Total | | 12,100 gal/min |

Arizona Water Company
Casa Grande

Exhibit A-2



Arizona Water Company
Coolidge

Exhibit A-3

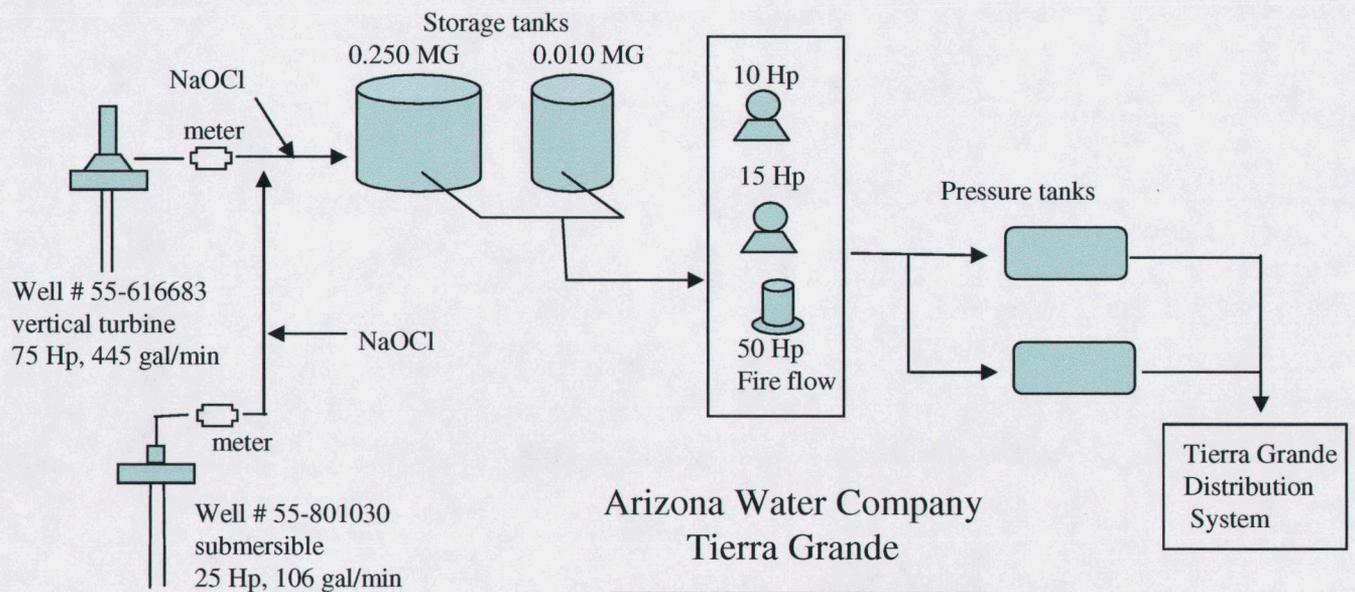
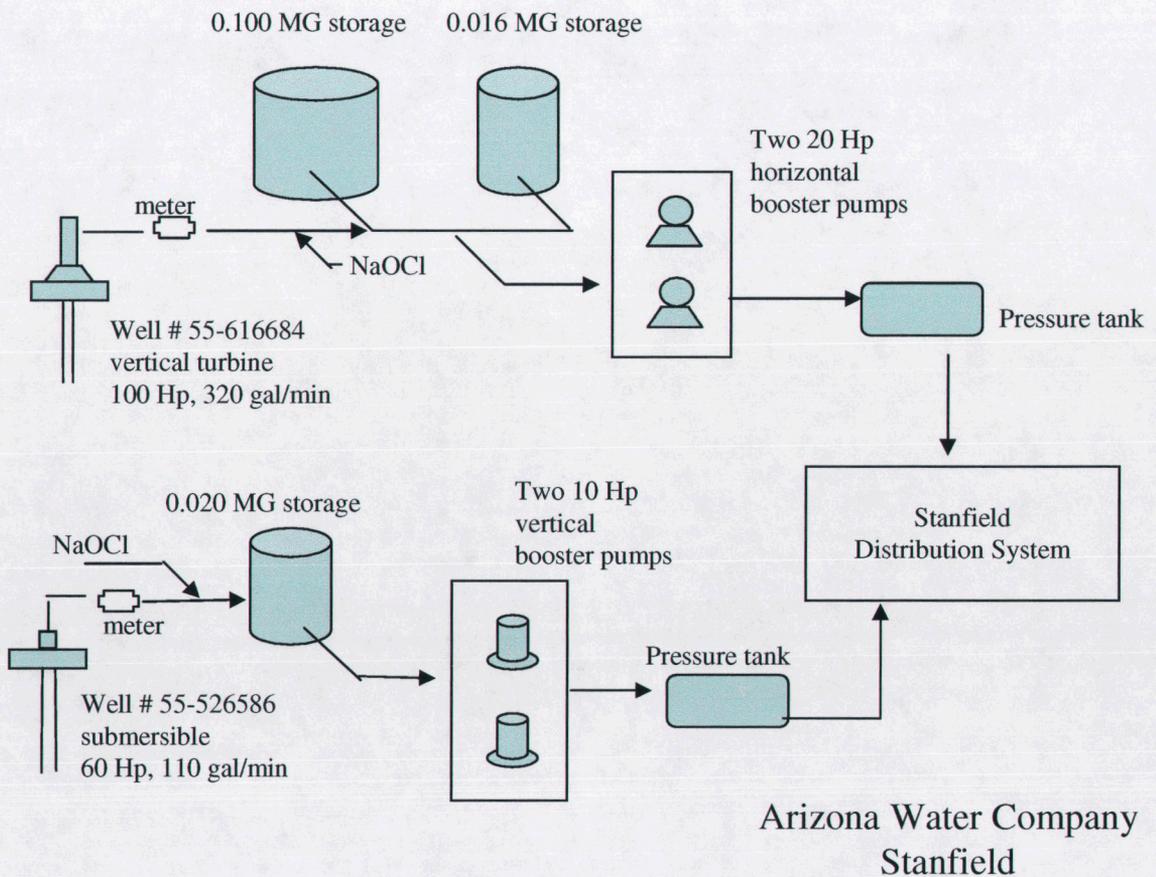
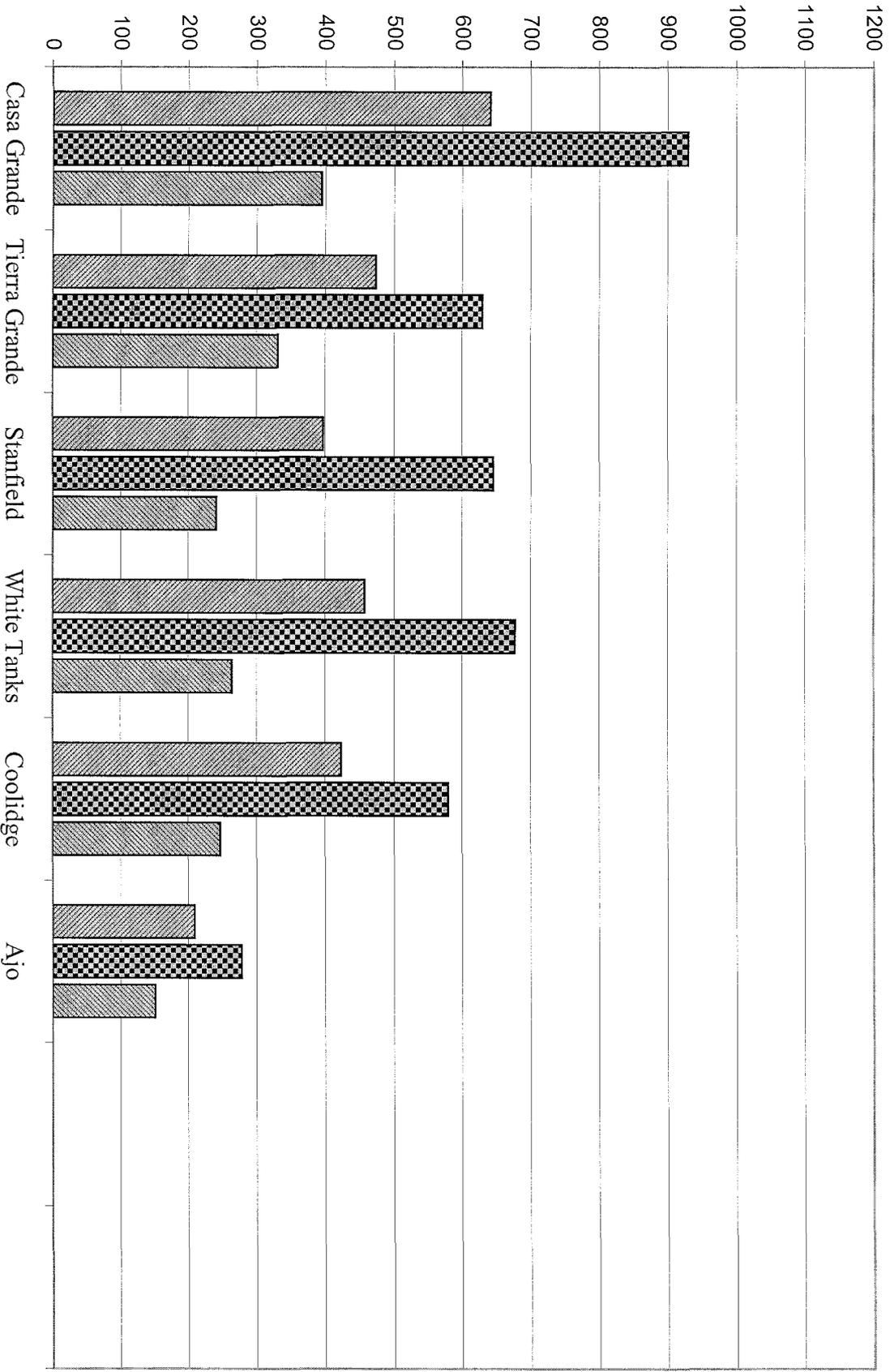


Exhibit A-4

Gallons / Day - Service



Annual Average Peak Month Minimum Month

Exhibit B
Western Group Water Use

1 ...

2 ...

3 ...

4 **TARIFF FOR NON-POTABLE CENTRAL ARIZONA PROJECT WATER**

5 **Q. What is the tariff for "Non-Potable Central Arizona Project Water" (herein "NP-**
6 **260").**

7 A. The NP-260 tariff provides the terms and conditions for non-potable Central Arizona
8 Project ("CAP") water service. It was originally approved in March 1994 under Decision
9 No. 61579. Under this tariff, the customer accepts untreated CAP water for subsequent
10 non-potable use, generally landscape or golf course irrigation. Decision No. 65755
11 ordered the Utilities Division to "...review the NP-260 Tariff of Arizona Water Company
12 during the pending general rate application for its Apache Junction system and
13 recommend changes or revisions as required.". Pursuant to that Decision, Staff has
14 reviewed the NP-260 tariff. (A copy of the present tariff is attached as Exhibit H.)

15

16 **Q. What are Staff's concerns about the NP-260 tariff as it now stands?**

17 A. Staff has many concerns:

18 ▪ First of all, the Company is collecting a depreciation expense from the customer for
19 the facilities which the customer has contributed. This is equivalent to Staff
20 purchasing a car for an individual, and then that person demanding car payments in
21 addition to the gift. Even worse, under this tariff, Staff are never even able to pay off
22 the car (for the second time), because the payments go on forever. That is why, in this
23 jurisdiction, a depreciation expense for contributed assets has been treated in such a
24 manner to have a zero net effect on the revenue requirement. Exhibit I is attached
25 which shows a copy of a typical bill, itemizing a depreciation charge to the customer.

- 1 ▪ Second, the Company is collecting a fixed monthly meter charge of \$362.53. In rate
2 design theory, the fixed monthly charge is supposed to reflect, at least partially, the
3 fixed investment necessary to meet the potential demand of a customer. Such fixed
4 investments would include wells, distribution mains, and storage tanks. These fixed
5 costs occur whether the customer takes zero or 10,000 gallons of water. (Since the
6 potential demand is higher for larger meters, the fixed charge is proportionate to meter
7 size.) There is simply no evidence that this \$362.53, which was derived for the
8 Apache Junction drinking water system and not the CAP system, is relevant to the
9 fixed costs of the CAP delivery system. Moreover, the CAP fixed costs are already
10 recovered in the Central Arizona Water Conservation District (herein "CAWCD")
11 Capital Charges, which are passed on directly to the customer with a percentage
12 administrative fee collected by Arizona Water Company. In other words, the fixed
13 charges are embedded in the CAP Demand Charge and already collected. Similarly,
14 costs which are directly proportional to the volume of water used, are recovered in the
15 commodity charge and this commodity charge is represented by the CAWCD
16 Commodity Rate, which is passed through with a percentage administrative fee
17 collected by Arizona Water Company.
- 18 ▪ Third, Arizona Water Company collects administrative costs, which are directly
19 proportional to the volume of water used, with no upper limits. Staff does not believe
20 that the administrative costs are linear with the volume of use. The cost to read a
21 meter and bill is the same, whether the customer uses 100 gallons or 10,000 gallons.
22 The typical bill in Exhibit I contains approximately \$95 in such administrative costs.
- 23 ▪ Fourth, the customers' rights are ill defined and unprotected during unusual
24 maintenance episodes. This was illustrated by the complaint filed by SLV properties
25 against Arizona Water Company (Docket No W-01445A-02-0198, Decision No.
26 65755). The tariff does not define either maintenance or replacement, and in the

1 complaint it was found that SLV paid more in the sum of two maintenance charges
2 than the original cost of the meter. Moreover, while Arizona Water Company failed
3 to act reasonably and prudently in the operation of the meter facility by failing to
4 install a surge suppression system to prevent electrical damage, SLV properties had to
5 pay the repair costs even though Arizona Water Company owned and had complete
6 control over the meter. As the situation now exists, Arizona Water has no duty or
7 incentive to protect the CAP equipment when the customer bears the consequences of
8 the Company's inactivity. However, it is not necessary to revisit or retry totally the
9 SLV equity issues in this document, and more background information on this topic
10 can be found in the SLV docket.

11
12 **Q. What is Staff's recommendation concerning the NP-260 tariff?**

13 **A.** Staff recommends that Arizona Water Company propose and file a new Non-Potable
14 Central Arizona Project Water tariff within 60 days of the date of a final decision in this
15 rate case. The proposed tariff shall generally conform to Exhibit J of this direct testimony.
16 As a summary of the major provisions of the proposed tariff in Exhibit J:

- 17 ■ The new NP-260 tariff will eliminate the fixed meter charge.
- 18 ■ The new NP-260 tariff will eliminate the depreciation charge.
- 19 ■ The new NP-260 tariff will contain a provision which indemnifies the customer from
20 maintenance, repair, or replacement charges, when the damage or injuries to the CAP
21 facilities are a result of the failure of the Company to operate the facilities or install
22 protective devices in accordance with customary or sound construction and
23 engineering practices.
- 24 ■ The customer will continue to be responsible for repair or replacement of the meter.

- 1 ▪ The new NP-260 tariff will contain administrative charges, which are representative of
2 the Company's actual costs, but the charges shall be fixed and defined as specific
3 dollar amounts.

4

5 **Q. Does this conclude your direct testimony?**

6 **A. Yes, it does.**

WATER RATES

| | | | |
|------------------------------|-----------------------------------|------------------------|------------------|
| ARIZONA WATER COMPANY | | A.C.C. No. | 440 |
| Phoenix, Arizona | | Cancelling A.C.C. No. | (not applicable) |
| Filed by: | William M. Garfield | Tariff or Schedule No. | NP-260 |
| Title: | President | Filed: | March 31, 2004 |
| Date of Original Filing: | March 7, 1994 | Effective: | March 10, 2004 |
| System: | CASA GRANDE, COOLIDGE, WHITE TANK | | |

NON-POTABLE CENTRAL ARIZONA PROJECT WATER

AVAILABILITY:

In the Company's Casa Grande, Coolidge and White Tank water systems, where and when Central Arizona Project ("CAP") water is available.

SUITABILITY:

It is the customer's responsibility to determine the initial and continuing suitability of the non-potable CAP water furnished under this tariff for any intended uses. The Company does not treat, test or monitor non-potable CAP water and furnishes it to customers strictly on an "as received" basis from the Central Arizona Water Conservation District ("CAWCD"). The customer agrees to accept non-potable CAP water "as received." Compliance with any requirement of the Arizona Department of Environmental Quality, or any other agency having jurisdiction, concerning the use or quality of non-potable CAP water shall be the sole responsibility of the customer. The Company will not be liable for, and the customer will hold harmless, indemnify and defend the Company against, any injuries or damages arising from its service of non-potable CAP water.

FACILITIES AND DEMAND:

When applying for non-potable CAP water service, the customer shall specify the maximum annual quantity of CAP water in acre feet (AF) that it intends to use under this tariff schedule and pursuant to a Non-Potable Water Facilities Contribution Agreement. This quantity of water will be used to determine the facilities required to serve the customer and will be the customer's maximum demand for non-potable CAP water ("CAP Demand") during any calendar year. The customer will be responsible for both the deferred (including holding costs) and the current annual CAWCD M&I Water Service Capital Charges on the CAP Demand and on any water use in excess of the CAP Demand.

The customer will contribute the funds required to install all facilities needed to provide CAP water. Such facilities will be owned by the Company.

The Deferred CAP Demand Charge includes the deferred annual CAWCD M&I Water Service Capital Charges and associated holding costs for the customer's CAP Demand. The Deferred CAP Demand Charge is payable prior to the start of service or within fifteen (15) days of any approved increase in CAP Demand. The Deferred CAP Demand Charge will be payable only on any future increase in CAP Demand for those customers receiving service under this tariff as of the effective date. The Deferred CAP Demand Charge is not refundable if the customer's CAP Demand is later reduced.

APPROVED FOR FILING
DECISION #: 66849

Effective 3/10/04
Effective 4/6/94
Revised 1/18/95
Revised 1/15/99

MONTHLY BILL:**ORIGINAL**

The monthly billing will consist of the following components:

1. A monthly CAP Demand charge equal to 1/12th of the customer's CAP Demand in AF times the applicable CAWCD M&I Water Service Capital Charge per AF plus four percent (4%) of such costs to cover the Company's administrative and handling costs. Should the customer's actual water use exceed the customer's CAP Demand, the customer will be billed an additional demand charge, based on the applicable CAWCD M&I Water Service Capital Charge, on the excess water use, plus a four percent (4%) administrative and handling fee.

2. A meter charge based on the applicable monthly minimum charge by meter size as set forth in each system's General Service tariff schedule. This meter charge shall not include any water.

3. A commodity charge designed to pass on all costs of non-potable CAP water, except the monthly CAP Demand charge, as billed to the Company during the previous month by the CAWCD or any other authorized governmental agency, plus one percent (1%) of such costs to cover the Company's administrative and handling costs.

4. A power, maintenance and depreciation charge based on the specific requirements of each customer.

A. The power component will be the direct and separately metered cost of the power billed to the Company during the previous month for CAP water delivered to the customer, plus one percent (1%) of the power cost to cover the Company's administrative and handling costs. If multiple customers are being served by common facilities, the power component will be prorated based on CAP water actually used during the month by each customer.

B. The maintenance component will be the actual costs of maintaining the facilities required to serve the customer, plus a ten percent (10%) charge to provide for overhead and margin. If multiple customers are being served by common facilities, the maintenance component will be prorated based on each customer's CAP Demand.

C. The depreciation component will be 1/12th of the product of the Company's book depreciation rate, as authorized by the Arizona Corporation Commission, times the original cost of the plant facilities serving the customer. If multiple customers are being served by common facilities, the depreciation component will be prorated based on each customer's CAP Demand.

Late Charge: Any payment not received within fifteen (15) days from the postmark date of the bill will be delinquent and subject to a late charge of one and one-half percent (1 1/2%) per month.

Adjustment: An adjustment for state and local taxes, which will be the applicable proportionate part of any taxes or governmental impositions which are, or in the future may be, assessed on the basis of the gross revenues of the Company and/or the price or revenue from the water or service sold and/or the volume of water pumped or purchased for sale and/or sold hereunder. In the event of any increase or decrease in taxes or other governmental impositions, rates shall be adjusted to reflect such tax increase or decrease.

TERMS AND CONDITIONS:

Subject to the Company's Tariff Schedule TC-243.

APPROVED FOR FILING

DECISION #: 66849

Effective 3/10/04
Effective 4/6/94
Revised 1/18/95
Revised 1/15/99

WATER RATES

| | | | |
|------------------------------|---------------------|------------------------|------------------|
| ARIZONA WATER COMPANY | | A.C.C. No. | 463 |
| Phoenix, Arizona | | Cancelling A.C.C. No. | (not applicable) |
| Filed by: | William M. Garfield | Tariff or Schedule No. | NP-274 |
| Title: | President | Filed: | April 12, 2004 |
| Date of Original Filing: | March 7, 1994 | Effective: | March 10, 2004 |
| System: | APACHE JUNCTION | | |

NON-POTABLE CENTRAL ARIZONA PROJECT WATER

AVAILABILITY:

In the Company's Apache Junction water system, where and when Central Arizona Project ("CAP") water is available.

SUITABILITY:

It is the customer's responsibility to determine the initial and continuing suitability of the non-potable CAP water furnished under this tariff for any intended uses. The Company does not treat, test or monitor non-potable CAP water and furnishes it to customers strictly on an "as received" basis from the Central Arizona Water Conservation District ("CAWCD"). The customer agrees to accept non-potable CAP water "as received." Compliance with any requirement of the Arizona Department of Environmental Quality, or any other agency having jurisdiction, concerning the use or quality of non-potable CAP water shall be the sole responsibility of the customer. The Company will not be liable for, and the customer will hold harmless, indemnify and defend the Company against, any injuries or damages arising from its service of non-potable CAP water.

FACILITIES AND DEMAND:

When applying for non-potable CAP water service, the customer shall specify the maximum annual quantity of CAP water in acre feet (AF) that it intends to use under this tariff schedule and pursuant to a Non-Potable Water Facilities Contribution Agreement. This quantity of water will be used to determine the facilities required to serve the customer and will be the customer's maximum demand for non-potable CAP water ("CAP Demand") during any calendar year. The customer will be responsible for both the deferred (including holding costs) and the current annual CAWCD M&I Water Service Capital Charges on the CAP Demand and on any water use in excess of the CAP Demand.

The customer will contribute the funds required to install all facilities needed to provide CAP water. Such facilities will be owned by the Company.

The Deferred CAP Demand Charge includes the deferred annual CAWCD M&I Water Service Capital Charges and associated holding costs for the customer's CAP Demand. The Deferred CAP Demand Charge is payable prior to the start of service or within fifteen (15) days of any approved increase in CAP Demand. The Deferred CAP Demand Charge will be payable only on any future increase in CAP Demand for those customers receiving service under this tariff as of the effective date. The Deferred CAP Demand Charge is not refundable if the customer's CAP Demand is later reduced.

MONTHLY BILL:

The monthly billing will consist of the following components:

1. A monthly CAP Demand charge equal to 1/12th of the customer's CAP Demand in AF times the applicable CAWCD M&I Water Service Capital Charge per AF. Should the customer's actual water use exceed the customer's CAP Demand, the customer will be billed an additional demand charge, based on the applicable CAWCD M&I Water Service Capital Charge, on the excess water use.

APPROVED FOR FILING
DECISION #: 66849

Effective 3/10/04
Effective 3/15/99
Revised 1/18/95
Revised 1/15/99

2. A commodity charge designed to pass on all costs of non-potable CAP water, except the monthly CAP Demand charge, as billed to the Company during the previous month by the CAWCD or any other authorized governmental agency.

3. A power and maintenance charge based on the specific requirements of each customer.

A. The power component will be the direct and separately metered cost of the power billed to the Company during the previous month for CAP water delivered to the customer. If multiple customers are being served by common facilities, the power component will be prorated based on CAP water actually used during the month by each customer.

B. The maintenance component will be the actual costs of maintaining, repairing, and replacing the facilities required to serve the customer, plus a ten percent (10%) charge to provide for overhead and margin; provided however, that the customer shall not be liable for maintenance, repair, or replacement charges, when the damage or injuries to the CAP facilities are a result in the failure of the Company to operate the facilities or install protective devices in accordance with customary or sound construction and engineering practices. If multiple customers are being served by common facilities, the maintenance component will be prorated based on each customer's CAP Demand.

The customer shall be responsible for the repair or replacement of the meter. However, the repair charges, during a single maintenance event, shall not exceed the current replacement cost of the item under repair.

C. A fixed administrative cost of fifty dollars (\$50) per month.

Late Charge: Any payment not received within fifteen (15) days from the postmark date of the bill will be delinquent and subject to a late charge of one and one-half percent (1 1/2%) per month.

Adjustment: An adjustment for state and local taxes, which will be the applicable proportionate part of any taxes or governmental impositions which are, or in the future may be, assessed on the basis of the gross revenues of the Company and/or the price or revenue from the water or service sold and/or the volume of water pumped or purchased for sale and/or sold hereunder. In the event of any increase or decrease in taxes or other governmental impositions, rates shall be adjusted to reflect such tax increase or decrease.

TERMS AND CONDITIONS:

Subject to the Company's Tariff Schedule TC-243.

APPROVED FOR FILING
DECISION #: 16849

Effective 3/10/04
Effective 3/15/99
Revised 1/18/95
Revised 1/15/99

RAMIREZ

BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
KRISTIN K. MAYES
Commissioner

IN THE MATTER OF THE APPLICATION OF) DOCKET NO. W-01445A-04-0650
ARIZONA WATER COMPANY, INC.)
FOR A DETERMINATION OF THE CURRENT)
FAIR VALUE OF ITS UTILITY PLANT AND)
PROPERTY AND FOR INCFREASES IN ITS)
RATE CHARGES FOR UTILITY SERVICE)
BASED THEREON)

DIRECT
TESTIMONY
OF
ALEJANDRO RAMIREZ
PUBLIC UTILITIES ANALYST III
UTILITIES DIVISION
ARIZONA CORPORATION COMMISSION

APRIL 18, 2005

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EXECUTIVE SUMMARY

The direct testimony of Staff witness Alejandro Ramirez addresses the following issues:

Capital Structure – Staff recommends the Commission adopt a capital structure consisting of 26.6 percent long-term debt and 73.4 percent equity for this proceeding.

Cost of Debt – Staff recommends the Commission adopt an 8.4 percent cost of long-term debt.

Cost of Equity – Staff recommends the Commission adopt a 9.1 percent return on equity (“ROE”). Staff bases its ROE recommendation on its discounted cash flow (“DCF”) and capital asset pricing model (“CAPM”) analyses. Staff’s recommended ROE range is 8.8 percent to 9.6 percent.

Overall Rate of Return – Staff recommends the Commission adopt an overall rate of return (“ROR”) of 8.9 percent.

Comment on the Direct Testimony of Company Witness Thomas M. Zepp – The Commission should reject Dr. Zepp’s proposed 11.25 percent ROE for the following reasons:

1. There are several problems associated with Dr. Zepp’s DCF estimates including; inappropriate calculation of the expected dividend yield, exclusive reliance on analysts’ forecasts, and failure to consider dividends per share growth.
2. Dr. Zepp’s “risk premium” analysis should be rejected because (1) it relies on analysts’ forecasts of future interest rates, and (2) it relies on past accounting returns on equity and past authorized returns on equity which cannot be meaningfully compared to the cost of equity.
3. Dr. Zepp’s proposed additional risks basis points should be rejected because it is (1) inconsistent with financial theory, and (2) Dr. Zepp has not demonstrated that these risks affect the cost of equity for Arizona Water.

1 **INTRODUCTION**

2 **Q. Please state your name, occupation, and business address.**

3 A. My name is Alejandro Ramirez. I am a Public Utilities Analyst employed by the Arizona
4 Corporation Commission (“ACC” or “Commission”) in the Utilities Division (“Staff”).
5 My business address is 1200 West Washington Street, Phoenix, Arizona 85007.

6
7 **Q. Briefly describe your responsibilities as a Public Utilities Analyst.**

8 A. In my position as a Public Utilities Analyst, I perform studies to estimate the cost of
9 capital component of revenue requirement in rate proceedings. I also perform other
10 financial analyses.

11
12 **Q. Please describe your educational background and professional experience.**

13 A. In 2002, I graduated summa cum laude from Arizona State University, receiving a
14 Bachelor of Science degree in Global Business with a specialization in finance. While
15 attending Arizona State University, I successfully completed the Barrett Honors College
16 curriculum. My course of studies included classes in corporate and international finance,
17 investments, accounting, statistics, and economics. I began employment as a Staff Public
18 Utilities Analyst in 2003. Since that time, I have provided Staff’s recommendations to the
19 Commission on financings and prepared various studies in the field of cost of capital and
20 econometrics. I have also attended seminars related to general regulatory and business
21 issues.

1 **Q. What is the scope of your testimony in this case?**

2 A. I provide Staff's recommended rate of return in this case. I discuss the appropriate rate of
3 return ("ROR") for establishing the revenue requirement for Arizona Water Company
4 ("Arizona Water" or "Applicant").

5

6 **SUMMARY OF TESTIMONY AND RECOMMENDATIONS**

7 **Q. Briefly summarize how Staff's cost of capital testimony is organized.**

8 A. Staff's cost of capital testimony is organized in eight sections. Section I discusses the
9 concept of weighted average cost of capital ("WACC"). Section II presents the concept of
10 capital structure and presents Staff's recommended capital structure for Arizona Water in
11 this proceeding. Section III discusses the concepts of return on equity ("ROE") and risk.
12 Section IV presents the methods employed to estimate Arizona Water's ROE. Section V
13 presents the findings of Staff's ROE analysis. Section VI presents the final cost of equity
14 estimates for Arizona Water. Section VII presents Staff's ROR recommendation. Section
15 VIII presents a discussion of the Applicant witness Dr. Thomas M. Zepp's cost of equity
16 analysis.

17

18 **Q. Have you prepared any exhibits to your testimony?**

19 A. Yes. I prepared nine schedules (AXR-1 to AXR-9) that support Staff's cost of capital
20 analysis.

21

22 **Q. What is Staff's recommended rate of return for Arizona Water?**

23 A. Staff recommends an 8.9 percent ROR, which is based on Arizona Water's cost of equity
24 estimates that range from 8.8 percent to 9.6 percent. This rate is calculated on Schedule
25 AXR-1.

1 **ARIZONA WATER'S PROPOSED OVERALL RATE OF RETURN**

2 **Q. Briefly summarize the Applicant's proposed capital structure, cost of debt, return on**
3 **equity and overall rate of return for this proceeding.**

4 A. Table 1 summarizes the Applicant's proposed capital structure, cost of debt, return on
5 equity and overall rate of return in this proceeding:

6
7 **Table 1**

| | Weight | Cost | Weighted Cost |
|----------------------------|---------------|-------------|--------------------------|
| Long-term Debt | 26.6% | 8.4% | 2.20% |
| Common Equity | 73.4% | 11.25% | 8.30% |
| Cost of Capital/ROR | | | 10.50% |

8
9 Arizona Water is proposing an overall rate of return of 10.50 percent.

10
11 **I. THE WEIGHTED AVERAGE COST OF CAPITAL**

12 **Q. Please define the cost of capital concept.**

13 A. The cost of capital is the opportunity cost of the funds employed as the result of an
14 investment decision. The cost of capital represents the returns that could be expected to
15 be earned in other investments with equivalent risk. In other words, the cost of capital is
16 the return that stakeholders expect for committing their resources in a determined business
17 enterprise. The cost of capital is calculated by using the WACC.

18
19 **Q. How is the WACC calculated?**

20 A. The WACC is calculated by adding the weighted expected returns of the firm's securities.

1 The following equation shows how the WACC is calculated:

2 Equation 1.

3
4
$$\text{WACC} = \sum_{i=1}^n W_i * r_i$$

5

6 Where W_i is the weight given to the i^{th} security (the proportion of the i^{th} security relative
7 to the portfolio) and r_i is the expected return on the i^{th} security.

8
9 **Q. Can you provide an example applying Equation 1?**

10 **A.** Yes. Assume that a firm has a capital structure composed of 75 percent debt and 25
11 percent equity. Also assume that the embedded cost of debt is 7.8 percent and the
12 expected return on equity (cost of equity) is 10.5 percent. The WACC calculation is as
13 follows:

14
$$\text{WACC} = 75\% * 7.8\% + 25\% * 10.5\%$$

15
$$\text{WACC} = 5.85\% + 2.63\%$$

16
$$\text{WACC} = 8.48\%$$

17

18 The weighted average cost of capital in this case is 8.48 percent. Given the firm's capital
19 structure, the company would have to earn an overall rate of return of 8.48 percent to
20 cover its cost of capital.

1 **II. CAPITAL STRUCTURE**

2 **Background**

3 **Q. Please explain the capital structure concept.**

4 A. The capital structure of a firm shows how its assets are financed over the long-run. The
5 capital structure of a firm is the mix of capital leases, long-term debt, preferred stock and
6 common stock that are used to finance the firm's assets.

7
8 **Q. How is the capital structure calculated?**

9 A. The capital structure of a company is calculated by finding the percentage of each
10 component of the capital structure (capital leases, long-term debt, preferred stock and
11 common stock) relative to the total capital (the total sum of all the components of the
12 capital structure).

13
14 For illustrative purposes, suppose that company A is financed by \$15,000 of capital leases,
15 \$80,000 of long-term debt, \$5,000 of preferred stock and \$35,000 of common stock.
16 Company A's capital structure would be calculated as follows:

17

| Component | | | % |
|-----------------|-----------|------------------------|-------|
| Capital Leases | \$15,000 | $(\$15,000/\$135,000)$ | 11.1% |
| Long-Term Debt | \$80,000 | $(\$80,000/\$135,000)$ | 59.3% |
| Preferred Stock | \$5,000 | $(\$5,000/\$135,000)$ | 3.7% |
| Common Stock | \$35,000 | $(\$35,000/\$135,000)$ | 25.9% |
| Total | \$135,000 | | 100% |

1 Company A's capital structure is composed of 11.1 percent capital leases, 59.3 percent
2 long-term debt, 3.7 percent preferred stock and 25.9 percent common stock.

3
4 **Q. Is there a relationship between capital structure and cost of equity capital?**

5 A. Yes. As a firm's leverage increases, so does its cost of equity capital. I will explain this
6 relationship in more depth further in my testimony (Page 11).

7
8 **Arizona Water Capital Structure**

9 **Q. What capital structure does the Applicant recommend for Arizona Water?**

10 A. The Applicant is recommending a capital structure composed of 26.6 percent long-term
11 debt and 73.4 percent common equity.

12
13 **Q. Is the Applicant's proposed capital structure the same capital structure**
14 **recommended by Staff?**

15 A. Yes, it is.

16
17 **Q. How does Arizona Water's capital structure compare to capital structures of**
18 **publicly traded water utilities?**

19 A. The Applicant's capital structure is composed of 26.6 percent long-term debt and 73.4
20 percent equity. Schedule AXR-2 shows the capital structures of six publicly traded water
21 companies ("sample water utilities") as of September 2004. The sample water utilities
22 were capitalized with approximately 49.5 percent debt and 50.5 percent equity, on
23 average.

1 **III. RETURN ON EQUITY**

2 **Background**

3 **Q. Please define the term cost of equity capital.**

4 A. The cost of equity to a firm is the rate of return that investors expect to earn on their equity
5 investment in that firm given its risk. In other words, the cost of equity to a firm is the
6 investors' expected rate of return on other investments of similar risk. The cost of equity
7 capital is determined by the market.

8
9 **Q. Is there any relationship between interest rates and the cost of equity?**

10 A. Yes. According to the capital asset pricing model ("CAPM")¹, the cost of equity moves in
11 the same direction as interest rates. It is helpful to take into account how current interest
12 rates compare to historical interest rates to have an idea of how the current cost of equity
13 capital might be compared to the cost of equity capital historically.

14
15 **Q. What has been the general trend of interest rates in recent years?**

16 A. Interest rates have decreased in recent years. Current interest rates are lower than what
17 they were at the end of 1999. Chart 1 graphs intermediate U.S. treasury rates from
18 November 1999 to November 2004:

¹ The CAPM is a market-based model used for estimating the cost of equity discussed further later in this testimony.

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Chart 1: Average Yield on 5-, 7-, & 10-Year Treasuries

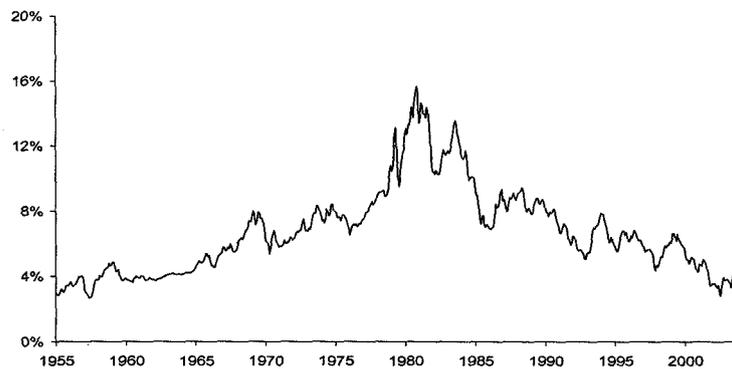


Source: Federal Reserve

Q. What has been the long-term trend in interest rates and what does it suggest for capital costs?

A. Chart 2 shows that interest rates have declined in the past twenty years and are currently at levels comparable to the 1960's. In retrospect, Chart 2 suggests that capital costs in general have declined significantly in the last 20 years.

Chart 2: History of 5- and 10-Year Treasury Yields



Source: Federal Reserve

1 **Q. Does the cost of equity represent actual returns?**

2 A. No. As mentioned earlier, the cost of equity represents the investors' *expected* returns as
3 opposed to actual returns.
4

5 **Q. What have historical returns been for average risk securities?**

6 A. Jeremy Siegel, a Wharton School finance professor, found that the average arithmetic and
7 compound annual returns on U.S. equities have been 9.7 percent and 8.3 percent,
8 respectively, using 199 years of data through 2001.²
9

10 **Q. What do these historical returns suggest about the cost of equity capital?**

11 A. These historical returns suggest that an allowed ROE at or above 11.25 percent as
12 proposed by the Applicant exceeds the arithmetic and compound average historical return
13 on U.S. equities for the period studied by Professor Siegel.
14

15 **Q. What information is available to provide insight into the relationship between the
16 required return on equity for a regulated water utility and the average return on the
17 market?**

18 A. The average beta (0.68)³ for a water utility is lower than the theoretical average beta for all
19 stocks (1.0). This implies that the required return on equity for a regulated water utility is
20 below the average required return on the market.

² Siegel, Jeremy J. *Stocks for the Long Run*, third edition. McGraw-Hill, New York. 2002. p.13.

³ See Schedule AXR-5

1 **Risk**

2 **Q. Please define risk.**

3 A. Risk can be defined as the level of uncertainty which is inherent in a financial
4 opportunity⁴. Risk is usually separated into two categories: market risk (also known as
5 systematic risk) and non-market risk (also known as unique risk).

6
7 **Q. What is market risk?**

8 A. Market risk (systematic risk) is defined as the sensitivity of an investment's return to
9 market returns. Market risk is related to the economy-wide perils that affect all business
10 such as inflation, interest rates, and general business cycles. Market risk affects all stocks.
11 But the impact on each company is not necessarily the same. Given that market risk
12 affects all the stocks, this risk is non-diversifiable (it cannot be eliminated). Accordingly,
13 market risk is the only risk that affects the cost of equity, and it is measured by beta. Beta
14 reflects both the business risk and financial risk of a firm.

15
16 **Q. What is non-market risk?**

17 A. Non-market risk (unique risk) is the one which is uncorrelated across firms in the
18 economy. Unique risk is related to the risk of an individual project or firm; therefore, it
19 can be eliminated through diversification. Investors can eliminate unique risk by holding
20 a diversified portfolio. Unique risk is not measured by beta, nor does it affect the cost of
21 equity because these firm-specific risks can be eliminated through shareholder
22 diversification.

⁴ Jacob, Nancy, Pettit, Richardson R. *Investments*, second edition. Irwin, Homewood. 1988. p.34.

1 **Q. Do Investors require additional return to account for unique risk?**

2 A. No. Investors who hold diversified portfolios do not require additional return for unique
3 risk because as mentioned earlier, non-market risk is eliminated through diversification.
4 Because investors who choose to be less than fully diversified must compete in the market
5 with fully diversified investors, the former cannot expect to be compensated for unique
6 risk.

7

8 **Q. It was mentioned that beta includes both the business and the financial risk of a firm.
9 How are business risk and financial risk defined?**

10 A. Business risk is that risk which is associated with the fluctuation in earnings due to the
11 basic nature of a firm's business. Financial risk is that risk which affects shareholders due
12 to a firm's reliance on debt financing.

13

14 **Q. Do both business and financial risk affect the cost of equity?**

15 A. Yes, they do.

16

17 **Q. What is the relationship between the capital structure of a firm and its financial
18 risk?**

19 A. Financial risk is closely related to how a firm finances its assets (capital structure of the
20 firm). A greater percentage of debt in a capital structure results in a higher level of
21 financial risk, which in turns affects the cost of equity. As a firm increases its reliance on
22 debt, it becomes more leveraged, increasing the firm's financial risk. Financial risk
23 affects the cost of equity: as a firm becomes more leveraged, it becomes more risky. As
24 the firm's risk increases, the firm's cost of equity also increases.

1 **Q. How does Arizona Water's financial risk compare to the sample water companies'**
2 **financial risk?**

3 A. Arizona Water's capital structure is composed of 26.6 percent long-term debt and 73.4
4 percent equity. Schedule AXR-2 shows the capital structures of six publicly traded water
5 companies ("sample water companies") as of September 2004, as well as Arizona Water's
6 capital structure. As of September 2004, the sample water utilities were capitalized with
7 approximately 49.5 percent debt and 50.5 percent equity. The Applicant's shareholders'
8 bear less financial risk than the average sample water companies.

9
10 **IV. ESTIMATING THE COST OF EQUITY**

11 **Introduction**

12 **Q. Did Staff directly estimate the cost of equity for the Applicant?**

13 A. No. Staff did not directly estimate Arizona Water's cost of equity for two reasons. First,
14 the Applicant does not have publicly traded stock; therefore, the required information to
15 estimate Arizona Water's cost of equity is not available. Second, any estimate of the cost
16 of equity for a single company stock would likely contain a high degree of random
17 fluctuations and thus be subject to considerable error. Using the average of a sample
18 group gives a more reliable estimate. Accordingly, Staff used a sample of water utilities
19 to estimate Arizona Water's cost of equity.

1 **Q. What companies did Staff select as proxies or comparables for Arizona Water?**

2 A. Staff selected six publicly traded water utilities shown on Schedule AXR-2. These
3 companies represent the water utilities that are currently analyzed by *The Value Line*
4 *Investment Survey Small and Mid Cap Edition* (“*Value Line Small Cap*”) and *The Value*
5 *Line Investment Survey* (“*Value Line*”) that have a significant amount of revenues derived
6 from regulated operations: American States Water, California Water, Connecticut Water
7 Services, Middlesex Water, Aqua America (formerly named Philadelphia Suburban), and
8 SJW Corp. These six water utilities are the same ones that Arizona Water’s witness Dr.
9 Zepp used in his cost of equity analysis.

10
11 **Q. What models did Staff implement to estimate Arizona Water’s cost of equity?**

12 A. As mentioned earlier, the cost of equity is determined by the market; therefore, Staff used
13 two widely accepted and known market-based models to estimate the Applicant’s cost of
14 equity: the discounted cash flow (“DCF”) model and the CAPM.

15
16 **Q. Explain why Staff chose the DCF and CAPM market-based models?**

17 A. Staff chose to use the DCF and CAPM models because they are widely recognized and
18 used. Further explanation of these models is provided later in the following section of this
19 testimony.

20
21 **Discounted Cash Flow Model Analysis**

22 **Q. Please provide a brief summary of the theory upon which the DCF method of**
23 **estimating the cost of equity is based.**

24 A. The DCF method of estimating the cost of capital is based on the theory that the present
25 value of a stock (current market price) is calculated the same way as it is for the present

1 value of any other asset. In other words, the current market price of a stock (asset) is
2 equal to the present value of all expected future dividends (cash flows).

3
4 In the 1960s, Professor Myron Gordon pioneered the use of the DCF method to estimate
5 the cost of capital for a public utility. This model has become widely used due to its
6 theoretical merit and its simplicity.

7
8 Through a mathematical formula, the discount rate, or cost of capital, can be estimated
9 from the expected dividend, the market price, and a dividend growth rate. The formula is
10 then applied to each company included in a sample that exhibits similar risk to the
11 company whose cost of equity is being estimated. The results are averaged to arrive at the
12 estimate of the cost of equity.

13
14 **Q. How did Staff apply the DCF Model?**

15 A. Staff applied two different versions of the DCF model. The first version of the DCF used
16 by Staff is the constant-growth DCF Model. The second version is a multi-stage or non-
17 constant growth DCF. The constant-growth DCF Model assumes that a company will
18 grow at the same rate indefinitely. The main assumption and advantage in the non-
19 constant growth DCF model is that it does not assume that dividends grow at a constant
20 rate over time.

21 *The Constant-Growth DCF*

22 **Q. What is the constant-growth DCF formula used in Staff's analysis?**

23 A. The constant-growth DCF formula used in Staff's analysis is:
24

Equation 2 :

$$K = \frac{D_1}{P_0} + g$$

where : K = the cost of equity
 D_1 = the expected annual dividend
 P_0 = the current stock price
 g = the expected infinite annual growth rate of dividends

1 Equation 2 assumes that the company has a constant retention rate and that its earnings are
2 expected to grow at a constant rate. Therefore, if a stock has a current market price of \$10
3 per share, an expected annual dividend of \$0.25 per share, and if its dividends were
4 expected to grow 5 percent per year, then the cost of equity to the company would be 7.5
5 percent (the 2.5 percent dividend yield plus the growth rate of 5.0 percent per year).

6
7 **Q. How did Staff calculate the dividend yield component (D_1/P_0) of the constant-growth**
8 **DCF formula?**

9 A. Staff calculated the yield component of the DCF formula by dividing the expected annual
10 dividend (D_1) by the spot stock price (P_0) after the close of the market on March 23rd,
11 2005, as reported by *MSN Money*.

12
13 **Q. Why did Staff use the spot stock price rather than a historical average stock price to**
14 **calculate the dividend yield component of the DCF formula?**

15 A. Staff used the current market stock price (spot stock price) rather than a historical average
16 to be consistent with finance theory. According to the efficient market hypothesis, the
17 current stock price includes investors' expectations of future returns and it is the best
18 indicator of those expectations.

1 **Q. How did Staff estimate the dividend growth (g) component of the DCF model?**

2 A. Equation 2 shows that the DCF model depends on dividend growth (g). Staff used a
3 combination of historical and projected dividend-per-share (“DPS”) growth provided by
4 *Value Line*. In addition, Staff also examined historical and projected growth in earnings-
5 per-share (“EPS”) and intrinsic growth when estimating the dividend growth rate.

6
7 **Q. Why did Staff examine EPS growth to estimate the dividend growth component of
8 the constant-growth DCF model?**

9 A. Staff took into account EPS growth (both historical and projected) when estimating the
10 dividend growth component of the constant-growth DCF model because dividends are not
11 independent of earnings. It would be unreasonable to assume that investors expect long-
12 term dividend growth to exceed long-term earnings growth because it would lead to
13 payout ratios in excess of 100 percent. Therefore, Staff considered historical and
14 projected EPS growth when estimating expected dividend growth.

15
16 **Q. How did Staff estimate historical DPS growth?**

17 A. Staff estimated historical DPS growth by calculating the average rate of growth in DPS of
18 the sample water companies from 1993 to 2003. The results of the analysis are shown on
19 Schedule AXR-3. Staff’s analysis indicates an average historical DPS growth rate of 2.6
20 percent for the sample water utilities.

21
22 **Q. What DPS growth rate does *Value Line* project for the sample water utilities?**

23 A. *Value Line* projects a 3.3 percent DPS growth rate for the sample water utilities, also
24 shown in Schedule AXR-3.

1 **Q. What is Staff's historical EPS growth rate?**

2 A. Schedule AXR-3 shows Staff's historical average rate of growth in EPS for the sample
3 water utilities. Staff's average historical EPS growth rate is 1.5 percent for the period
4 1993 to 2003.

5
6 **Q. What EPS growth rate does *Value Line* project?**

7 A. *Value Line's* projected EPS growth rate is 14.3 percent for the sample water utilities, as
8 shown in Schedule AXR-3. It is important to take into account that Analysts' projections
9 of the future earnings are usually high⁵ and vary widely.

10

11 **Q. How was Staff's intrinsic growth rate calculated?**

12 A. Staff's intrinsic growth rate was calculated by adding the retention growth rate term (br) to
13 the stock financing growth rate term (vs).

14

15 **Q. What is retention growth?**

16 A. Retention growth is the growth in dividends due to the retention of earnings. This concept
17 is based on the theory that dividend growth will not be achieved unless the company
18 retains and reinvests some of its earnings. In other words, retention growth rate is the
19 product of the retention ratio and the book/accounting return on equity. Retention growth
20 is a component of Staff's intrinsic growth calculation.

⁵ See Seigel, Jeremy J. Stocks for the Long Run. 2002. McGraw-Hill. New York. p. 100. Malkiel, Burton G. A Random Walk Down Wall Street. 1999. W.W. Norton & Co. New York. p. 169. Dreman, David. Contrarian Investment Strategies: The Next Generation. 1998. Simon & Schuster. New York. pp. 97-98. Testimony of Professors Myron J. Gordon and Lawrence I. Gould, consultant to the Trial Staff (Common Carrier Bureau), FCC Docket 79-63, p. 95.

1 **Q. What is the formula for the retention growth rate?**

2 A. The retention growth rate formula is:

3

Equation 3 :

$$\text{Retention Growth Rate} = br$$

where : b = the retention ratio (1 – dividend payout ratio)
 r = the accounting/book return on common equity

4

5 **Q. What historical retention (br) growth rate did Staff calculate for the sample water**
6 **utilities?**

7 A. Staff calculated a historical average retention (br) growth of 3.1 percent for the sample
8 water utilities, shown on Schedule AXR-4. This rate was calculated by averaging the
9 retention growth rate for the years 1994 through 2003.

10

11 **Q. Does *Value Line* project retention growth?**

12 A. Yes, it does. *Value Line* projects an average retention growth rate of 5.3 percent for the
13 period 2007-2009 for the sample water utilities, as shown on Schedule AXR-4.

14

15 **Q. When is the br growth a reasonable estimate of future dividend growth?**

16 A. The br growth rate is a reasonable estimate of future dividend growth when the retention
17 ratio is fairly constant and the company's market price to book value ("market-to-book
18 ratio") is expected to be 1.0. The average retention ratio has been fairly constant over the
19 past several years. However, the market to book ratio for the sample water utilities is
20 higher than 1.0 (As shown is Schedule AXR-5, it is 2.3). Staff assumes that investors
21 expect the market-to-book ratio to remain above 1.0.

1 **Q. Is there any financial implication of a market-to-book ratio greater than 1.0?**

2 A. Yes. A market-to-book ratio greater than 1.0 implies that investors expect the company to
3 earn an accounting/book return on its equity higher than its cost of equity.
4

5 **Q. How has Staff accounted for the assumption that investors expect the average
6 market-to-book ratio of the sample water utilities to remain above 1.0?**

7 A. Staff added a second growth term (stock financing growth rate or vs) to the br growth rate
8 to account for the assumption that investors expect the average market-to-book ratio of the
9 sample water utilities to remain above 1.0.
10

11 **Q. What is stock financing growth?**

12 A. Stock financing growth is the growth in a company's dividends due to the sale of stock.
13 This term, derived by Myron Gordon in his book, *The Cost of Capital to a Public Utility*⁶,
14 is the product of the fraction of the funds raised from the sale of stock that accrues to
15 existing shareholders (v) and the funds raised from the sale of stock as a fraction of the
16 existing common equity (s).
17

18 **Q. What is the formula for the stock financing growth rate?**

19 A. The stock financing growth formula is:

⁶ Gordon, Myron J. *The Cost of Capital to a Public Utility*. MSU Public Utilities Studies, Michigan, 1974. pp 31-35.

Equation 4 :

Stock Financing Growth = vs

where : v = Fraction of the funds raised from the sale of stock that accrues to existing shareholders

s = Funds raised from the sale of stock as a fraction of the existing common equity

1

2 **Q. How is the variable v presented above calculated?**

3 A. Variable v is calculated as follows:

Equation 5 :

$$v = 1 - \left(\frac{\text{book value}}{\text{market value}} \right)$$

4

5 For example, let's assume that a share of stock has a \$20 book value and is selling for \$25.

6 Then, to find the value of v , the formula is applied:

$$v = 1 - \left(\frac{20}{25} \right)$$

7

In this example, v would be equal to 0.20. Staff found that the average v for the sample water utilities is 0.50.

8

9

10 **Q. How is the variable s presented above calculated?**

11 A. Variable s is calculated as follows:

12

Equation 6:

13

14

$$s = \frac{\text{Funds raised from the issuance of stock}}{\text{Total existing common equity before the issuance}}$$

1 For example, assume that a company has \$100 in existing equity, and it sells \$10 of stock.
2 Then, to find the value of s, the formula is applied:

$$s = \left(\frac{10}{100} \right)$$

3 In this example, s would be equal to 10.0 percent. Staff found the average s for the sample
4 water utilities to be 3.7 percent.

5
6 **Q. What would happen to the vs term if the market-to-book ratio is equal to 1.0?**

7 A. As mentioned earlier, when investors expect to earn a book/accounting return on their
8 equity investment equal to the cost of equity, the market-to-book ratio will be equal to 1.0.
9 If the market-to-book ratio is equal to 1.0, then the term v will equal zero (0.0), and
10 consequently, the stock financing growth term will equal zero (0.0). In summary, when the
11 market-to-book ratio is equal to 1.0, no funds raised from sale of stock will accrue to
12 existing stock holders, and dividend growth will depend on the br term.

13
14 **Q. How does the vs term work when the market-to-book ratio is higher than 1.0?**

15 A. When investors expect a company to earn a book/accounting return on equity higher than
16 its cost of equity, the market-to-book ratio will be higher than 1.0. In this case, the v term
17 will be different from zero (0.0). When new shares are issued and sold, the book value per
18 share of outstanding stock is less than the contribution per share of the new stockholders.
19 This excess per share contribution over the book value per share will accrue to existing
20 stockholders in the form of a higher book value. The resulting higher book value leads to
21 higher expected earnings and dividends.

1 **Q. What is the vs estimate for the sample water utilities?**

2 A. Staff estimated an average stock financing growth (vs) of 2.2 percent for the sample water
3 utilities, as it is shown on Schedule AXR-4.

4
5 **Q. When investors expect the company to earn a book/accounting return on equity
6 higher than its cost of equity, the market-to-book ratio is higher than 1.0. What
7 would happen to a utility's market-to-book ratio if its authorized (book/accounting)
8 ROE is set equal to its cost of equity?**

9 A. In theory, if a utility's authorized ROE is set equal to its cost of equity, the utility's
10 market-to-book ratio should decline to 1.0. This implies that in the long-run, the vs term
11 is unnecessary. However, in reality, rate orders might not force the market-to-book ratios
12 to 1.0 for a variety of reasons. For example, the company might have sources of income
13 that are not regulated, and regulatory commissions do not issue orders simultaneously for
14 utilities that operate in different jurisdictions. Staff's inclusion of the vs term in its
15 constant-growth DCF analysis might result in an over estimate of its intrinsic dividend
16 growth rate and the resulting DCF estimate. Staff's DCF estimates are too high if
17 investors expect the average market-to-book ratio of the sample water utilities' to fall to
18 1.0 due to falling authorized ROEs.

19
20 **Q. What is Staff's intrinsic growth rate?**

21 A. Staff estimated an intrinsic growth rate of 5.3 percent when using historical retention
22 growth and an intrinsic growth rate of 8.5 percent when using retention growth projected
23 by *Value Line*. Schedule AXR-4 presents Staff's estimates of the intrinsic growth rate.

1 **Q. What is Staff's expected infinite annual growth rate in dividends?**

2 A. Staff averaged historical and projected growth in dividends per share ("DPS"), earnings
3 per share ("EPS"), and intrinsic growth to calculate the expected infinite annual growth
4 rate in dividends. Schedule AXR-6 presents the calculation of the expected infinite annual
5 growth rate in dividends. Staff's estimate is 5.9 percent.

6
7 **Q. What is Staff's constant-growth DCF estimate?**

8 A. Staff's constant-growth DCF estimate is 9.1 percent, which is shown on Schedule AXR-8.

9
10 *The Multi-Stage DCF*

11 **Q. Why did Staff implement the multi-stage DCF model to estimate Arizona Water's**
12 **cost of equity?**

13 A. As previously stated, Staff implemented the multi-stage DCF model to account for the
14 assumption that dividends may not grow at a constant rate. Staff's multi-stage DCF model
15 incorporates two growth rates: a near term growth rate and a long-term growth rate.

1 **Q. What is the multi-stage DCF formula?**

2 A. The multi-stage DCF formula is shown in the following equation:

3

Equation 7 :

$$P_0 = \sum_{t=1}^n \frac{D_t}{(1+K)^t} + \frac{D_n(1+g_n)}{K-g_n} \left[\frac{1}{(1+K)} \right]^n$$

Where: P_0 = current stock price

D_t = dividends expected during stage 1

K = cost of equity

n = years of non – constant growth

D_n = dividend expected in year n

g_n = constant rate of growth expected after year n

4 As mentioned above, Staff incorporated two growth rates. This assumes that investors
5 expect dividends to grow at a non-constant rate in the near-term (“Stage -1 growth”), and
6 then to grow at constant rate in the long-term (“Stage-2 growth”).

7

8 **Q. How did Staff implement the multi-stage DCF model to find the cost of equity?**

9 A. First, Staff forecasted a stream of dividends for each of the sample water utilities. The
10 forecasted stream of dividends was calculated based on two different growth rates (near-
11 term growth and long-term growth). Second, given the current stock price for each of the
12 sample water utilities, Staff found the rate (cost of equity) which equates the present value
13 of the stream of dividends to the current stock price.

1 **Q. How did Staff calculate stage-1 growth (near-term growth)?**

2 A. Staff forecasted four years of dividends for each of the sample water utilities using
3 expected dividends over the next twelve months for the first year and *Value Line's*
4 projected DPS growth rate for the subsequent years (Refer to Schedule AXR-7).

5
6 **Q. How did Staff estimate stage-2 growth (long-term growth)?**

7 A. Staff used the rate of growth in gross domestic product ("GDP") from 1929 to 2004. This
8 historical growth is appropriate because it assumes that the water utility industry is
9 expected to grow neither faster, nor slower, than the overall economy.

10

11 **Q. What is the historical growth in GDP that Staff used to estimate stage-2 growth?**

12 A. The historical growth in GDP that Staff used to estimate stage-2 growth is 6.5 percent
13 (1929-2004).

14

15 **Q. What is Staff's multi-stage DCF estimate?**

16 A. Staff's multi-stage DCF estimate is 9.5 percent, as shown on Schedule AXR-7.

17

18 **Q. What is Staff's overall DCF estimate?**

19 A. Staff's overall DCF estimate is 9.3 percent, as shown in Schedule AXR-8. Staff's overall
20 DCF estimate was calculated by averaging Staff's constant growth DCF and Staff's multi-
21 stage DCF estimates.

22

23 **Capital Asset Pricing Model**

24 **Q. Please describe the capital asset pricing model.**

25 A. The CAPM is the best known model of risk and return. This model is concerned with the

1 determination of prices of capital assets in a competitive market. An important
2 assumption of the CAPM is that investors are risk adverse—they require a greater return
3 for bearing greater risk. This model also assumes that investors diversify because it
4 allows them to reduce the level of risk exposure for a given level of expected return.⁷ In
5 1990, Professors Harry Markowitz, William Sharpe, and Merton Miller earned the Nobel
6 Prize in Economic Sciences for their contribution to the development of the CAPM.

7
8 **Q. What is the CAPM formula?**

9 **A.** The CAPM formula is shown in the following equation:

Equation 8 :

$$K = R_f + \beta (R_m - R_f)$$

where : R_f = risk free rate
 R_m = return on market
 β = beta
 $R_m - R_f$ = market risk premium
 K = expected return

10 Mathematically represented, the expected return on a risky asset is equal to the prevailing
11 risk-free interest rate plus the market risk premium which is adjusted for the riskiness
12 (beta) of the investment relative to the market.

⁷ The CAPM also assumes the following: 1. Single holding period 2. Perfect and competitive securities market 3. No transaction costs 4. No restrictions on short selling or borrowing 5. The existence of a risk-free rate 6. Homogeneous expectations.

1 **Q. What does beta measure?**

2 A. Beta measures the systematic risk of a company. As stated previously, systematic risk is
3 the only form of risk that is relevant when estimating a company's required return because
4 it is the only risk that cannot be eliminated through diversification. The market's beta is
5 1.0; therefore, a security with a beta higher than 1.0 is riskier than the market, and a
6 security with a beta lower than 1.0 is less risky than the market.

7
8 **Q. How was the CAPM implemented to estimate Arizona Water's cost of equity?**

9 A. Staff implemented the CAPM on the same sample water utilities used in Staff's DCF
10 analysis.

11
12 **Q. What risk-free rate of interest did Staff estimate?**

13 A. Staff calculated an estimate of the risk-free rate of interest by averaging intermediate-term
14 U.S. Treasury securities' spot rates published in *The Wall Street Journal*. Staff averaged
15 the yields-to-maturity of three intermediate-term⁸ (five, seven, and ten-year) U.S. Treasury
16 securities published in the March 24th, 2005, edition of *The Wall Street Journal*. Staff
17 estimated the risk-free rate to be 4.45percent.⁹

18

⁸ The use of intermediate-term securities is based on the theoretical specification that the time to maturity approximates the investor's holding period, and assumes that most investors consider the intermediate time frame (5-10 years) a more appropriate investment horizon. See Reilly, Frank K., and Keith C. Brown. *Investment Analysis and Portfolio Management*. 2003. South-Western. Mason, OH. p. 439.

⁹ Average yield on 5-, 7-, and 10-year Treasury notes according to the March 24th, 2005, edition of *The Wall Street Journal*: 4.29%, 4.46%, and 4.60%, respectively.

1 **Q. Why did Staff use U.S Treasury security spot rates to calculate an estimate of the**
2 **risk-free rate?**

3 A. Staff used U.S. Treasury securities' spot rates published in *The Wall Street Journal*
4 because they are verifiable, objective and readily available.

5
6 **Q. What beta (β) did Staff use?**

7 A. Staff estimated Arizona Water's beta (β) to be 0.68. Staff averaged the *Value Line* betas
8 of the sample water utilities and used this average as a proxy for Arizona Water's beta.
9 Schedule AXR-5 shows the *Value Line* betas for each of the sample water utilities.

10

11 **Q. What is the expected market risk premium ($R_m - R_f$)?**

12 A. The expected market risk premium is the additional amount of return over the risk-free
13 rate that investors expect to receive from investing in the market (or an average-risk
14 security). Staff used two approaches to calculate the market risk premium: the historical
15 market risk premium approach and the current market risk premium approach.

16

17 **Q. Could you describe the historical market risk premium estimate approach?**

18 A. In this approach, Staff assumed that if one consistently uses the long-run average market
19 risk premium to estimate the expected market risk premium, one should, on average, be
20 correct. In this approach Staff assumed that the average historical market risk premium
21 estimate is a reasonable estimate of the expected market risk premium.

1 **Q. How did Staff calculate the historical market risk premium?**

2 A. For the market risk premium estimate, Staff used the intermediate-horizon equity risk
3 premium published in the Ibbotson Associates' *Stocks, Bonds, Bills, and Inflation 2004*
4 *Yearbook* for the period 1926-2003. Ibbotson Associates calculated the historical risk
5 premium by averaging the historical arithmetic differences between the S&P 500 and the
6 intermediate-term government bond income returns. Staff's historical market risk
7 premium estimate is 7.6 percent.

8
9 **Q. How did Staff calculate the current market risk premium estimate?**

10 A. In this approach, Staff found a DCF-derived ROE using the expected dividend yield (over
11 the next twelve months) and growth that *Value Line* projects for all dividend-paying
12 stocks under its review (March 25, 2005). Given the DCF-derived ROE, the market's
13 average beta of 1.0 and the current long-term risk-free rate, Staff used the CAPM formula
14 to solve for the implied current market risk premium.

15
16 According to the March 25, 2005, edition of *Value Line*, the expected dividend yield is 1.6
17 percent and the expected annual growth in share price is 9.73 percent.¹⁰ Therefore, the
18 constant-growth DCF estimate of the cost of equity to all dividend-paying stocks followed
19 by *Value Line* is 11.33 percent (9.73 percent + 1.6 percent). The current market risk
20 premium implied by the CAPM equation using the yield on the 30-year Treasury note
21 (4.86 percent) is 6.47 percent.¹¹

¹⁰ 3 to 5 year price appreciation potential is 45%. $1.45^{3/5} - 1 = 9.73\%$

¹¹ $11.33\% = 4.86\% + (1) (6.47\%)$

1 **Q. What is Staff's expected market risk premium estimate?**

2 A. Staff's market risk premium estimate is 5.9 percent to 7.6 percent.

3
4 **Q. What is the result of Staff's CAPM analysis?**

5 A. Staff's overall CAPM estimate is 9.2 percent, as shown in Schedule AXR-8. Staff's
6 overall CAPM estimate was calculated by averaging Staff's historical market risk
7 premium CAPM (9.6 percent) and the current market risk premium CAPM (8.8 percent)
8 estimates.

9
10 **V. FINDINGS OF STAFF'S COST OF EQUITY ANALYSIS**

11 **Q. What is the result of Staff's constant-growth DCF analysis?**

12 A. Schedule AXR-8 shows the result of Staff's constant-growth DCF Analysis. The result of
13 Staff's constant-growth DCF analysis is as follows:

14 $k = 3.2\% + 5.9\%$

15
16 $k = 9.1\%$

17 Staff's constant-growth DCF estimate of the cost of equity to the sample water utilities is
18 9.1 percent.

19
20 **Q. What is the result of Staff's multi-stage DCF analysis?**

21 A. Schedule AXR-7 shows the result of Staff's multi-stage DCF Analysis. The result of
22 Staff's multi-stage DCF analysis is:

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| Company | Equity Cost Estimate (k) |
|-----------------------|---------------------------------|
| American States Water | 9.7% |
| California Water | 9.5% |
| Aqua America | 8.7% |
| Connecticut Water | 9.7% |
| Middlesex Water | 10.1% |
| SJW Corp | 9.3% |
| Average | 9.5% |

Staff's multi-stage DCF estimate of the cost of equity to the sample water utilities is 9.5 percent.

Q. What is Staff's overall DCF estimate?

A. Staff's overall DCF estimate is 9.3 percent, as shown in Schedule AXR-8. Staff's overall DCF estimate was calculated by averaging Staff's constant growth DCF and Staff's multi-stage DCF estimates.

Q. What is the result of Staff's CAPM analysis using the historical market risk premium estimate?

A. Schedule AXR-8 shows the result of Staff's CAPM analysis using the historical risk premium estimate. The result is as follows:

$$k = 4.45\% + 0.68*(7.6\%)$$
$$k = 9.6\%$$

Staff's CAPM estimate (using the historical market risk premium) of the cost of equity to the sample water utilities is 9.6 percent.

1 **Q. What is the result of Staff's CAPM analysis using the current market risk premium**
2 **estimate?**

3 A. Schedule AXR-8 shows the result of Staff's CAPM Analysis using the current market risk
4 premium estimate. The result is:

5 $k = 4.45\% + 0.68*(6.47\%)$

6 $k = 8.8\%$
7

8 Staff's CAPM estimate (using the current market risk premium) of the cost of equity to the
9 sample water utilities is 8.8 percent.

10
11 **Q. What is Staff's overall CAPM estimate?**

12 A. Staff's overall CAPM estimate is 9.2 percent, as shown in Schedule AXR-8. Staff's
13 overall CAPM estimate was calculated by averaging Staff's historical market risk
14 premium CAPM (9.6 percent) and the current market risk premium CAPM (8.8 percent)
15 estimates.

16
17 **Q. Please summarize the results of Staff's cost of equity analysis.**

18 A. The following table shows the results of Staff's cost of equity analysis:
19

20 **Table 2**

| Method | Estimate |
|------------------------|-----------------|
| Average DCF Estimate | 9.3% |
| Average CAPM Estimate | 9.2% |
| Overall Average | 9.3% |

21

22 Staff's average estimate of the cost of equity to the sample water utilities is 9.3 percent.

1 **VI. FINAL COST OF EQUITY ESTIMATES FOR ARIZONA WATER**

2 **Q. Does Arizona Water's cost of equity depend on its capital structure?**

3 A. Yes, it does. It was mentioned previously in this testimony that as a company increases its
4 leverage (debt), its cost of equity increases. The average capital structure for the sample
5 water utilities is composed of 49.5 percent long-term debt and 50.5 percent equity, as
6 shown on Schedule AXR-2. As mentioned previously, Arizona Water's capital structure
7 is composed of 26.6 long-term debt and 73.4 percent equity; therefore, its stockholders do
8 bear less financial risk than the average sample water utilities, and the Applicant's cost of
9 equity is lower than that of the water sample utilities.

10
11 **Q. Did Staff calculate the effect of Arizona Water's capital structure on its cost of**
12 **equity?**

13 A. Yes. Staff relied on the methodology developed by Professor Robert Hamada of the
14 University of Chicago, which incorporates capital structure theory with the CAPM, to
15 estimate the effect of Arizona Water's capital structure on its cost of equity. On average,
16 Arizona Water's cost of equity is approximately 60 basis points *lower* than the cost of
17 equity to the water sample utilities. Subtracting these 60 basis points to the average
18 estimate of the sample water utilities' cost of equity (9.3 percent) would result in a cost of
19 equity estimate for Arizona Water of 8.7 percent. However, Staff is recommending a 9.1
20 percent cost of equity for the Applicant.

21

1 **Q. How did Staff take into account the different financial risk between of the water**
2 **sample utilities and Arizona water?**

3 A. Staff's cost of equity estimates range from 8.8 percent to 9.6 percent for the water sample
4 utilities. Staff's recommended ROE of 9.1 percent is at the lower end of Staff's average
5 of DCF and CAPM estimates, and is therefore reasonable.

6
7 **Q. What is Staff's ROE recommendation for Arizona Water?**

8 A. Staff estimated a 9.1 percent ROE for the Applicant based on cost of equity estimates
9 ranging from 8.8 percent to 9.6 percent.

10
11 **VII. RATE OF RETURN RECOMMENDATION**

12 **Q. What is Staff's overall rate of return recommendation for Arizona Water?**

13 A. Staff recommends a ROR of 8.9 percent for the Applicant, as shown in Schedule AXR-1
14 and the following table:

15 **Table 3**

| | Weight | Cost | Weighted Cost |
|----------------------------|---------------|-------------|--------------------------|
| Long-term Debt | 26.6% | 8.4% | 2.2% |
| Common Equity | 73.4% | 9.1% | <u>6.7%</u> |
| Cost of Capital/ROR | | | 8.9% |

16
17 **VIII. COMMENT ON THE DIRECT TESTIMONY OF THE APPLICANT WITNESS**
18 **THOMAS M. ZEPP.**

19 **Q. Please summarize Dr, Zepp's recommendations, analyses and estimates.**

20 A. Doctor Zepp recommends an 11.25 percent ROE. He calculates two DCF estimates for
21 the same sample water utilities (FERC one-step DCF and FERC two-step DCF). He also

1 conducts three premium risk analyses based on the sample water utilities. The average of
2 all his cost of equity estimates is 10.8 percent.¹²

3
4 Then he argues that Arizona Water faces additional risks related to the use of an historical
5 test year, the elimination of the Applicant's purchased power adjuster mechanism
6 ("PPAM") and purchased water adjuster mechanism ("PWAM") in the Eastern Group, the
7 Environmental Protection Agency's ("EPA") new arsenic standard and the Commission's
8 policy of requiring inverted block rates, so he recommends adding at least 50 basis points
9 to its cost of equity estimates. Dr. Zepp also contrasts the Applicants recommended ROE
10 with past Commission decisions for water and gas utilities which indicate an average cost
11 of equity of 11.0 percent. Finally, Dr. Zepp comes up with his recommended 11.25
12 percent return on equity.

13
14 **General Comments**

15 **Q. Does Staff have any comments on Dr. Zepp's testimony?**

16 **A.** Yes. Dr. Zepp states in his direct testimony that he has implemented the Federal Energy
17 Regulatory Commission ("FERC") DCF method for estimating the cost of equity rather
18 than Staff's because according to him, the FERC approaches are "clearly superior to the
19 approaches taken by Staff in 2003"(Zepp Direct, Page 5 line 22 & 23). Then he adds that
20 his cost of equity estimates "based on the risk premium methods and data relied upon by
21 the CPUC Staff are clearly superior..." (Zepp Direct, Page 6, Lines 7 & 8). However, he
22 has failed to demonstrate that the approaches taken by both the FERC and the CPUC Staff
23 are superior to the ones used by Staff. In the following section, Staff discusses its

¹² Direct testimony of Thomas M. Zepp, Table 15.

1 concerns with the methods used by Dr. Zepp to estimate the cost of equity to Arizona
2 Water. Staff's cost of equity models are clearly superior to the ones used by Dr. Zepp.

3
4 **Dr. Zepp's unique risk argument**

5 **Q. Does Staff agree with Dr. Zepp's statement that Arizona Water is more risky than**
6 **the water utilities used in the sample; therefore, Arizona Water's cost of equity**
7 **should be at least 50 basis points higher than the benchmark water utilities?**

8 A. No. Staff recommends that the Commission give no weight to Dr. Zepp's unique risks
9 argument. Dr. Zepp's 50 basis points addition is arbitrary. Dr. Zepp argues that the
10 Applicant is more risky than the water utilities used in the sample based on four so-called
11 additional risk factors: (1) use of an historical test year, potential disallowances, (2)
12 elimination of the Applicant's purchased power adjuster mechanism ("PPAM") and
13 purchased water adjuster mechanism ("PWAM") in the Eastern Group, (3) the new
14 Environmental Protection Agency's ("EPA") arsenic standard, (4) and use of inverted
15 block rates. The following deals with each of these so-called risk factors in turn, and
16 shows that they do not, or have not been shown to affect the cost of equity. As mentioned
17 before, unsystematic (unique) risk is not priced by the market.¹³

¹³ Weston, J. Fred, Thomas E. Copeland. Managerial Finance. 1986. Dryden Press, Chicago. p. 415.

1

2 *Historical Test Year, Potential Disallowances*

3 **Q. On pages 17 and 18 of his direct testimony, Dr. Zepp asserts that Arizona Water**
4 **faces more risk than the water sample utilities because it has rates based on an**
5 **historical test year, with limited ability to make post test year adjustments. Is equity**
6 **risk related to test year conventions?**

7 A. No. The test year convention does not affect risk. Test years are the vehicle to determine
8 average costs and tariffs. Dr. Zepp has failed to show how a test year convention affects
9 Arizona Water's systematic risk, which as mentioned before, is the only relevant risk to
10 the cost of equity.

11

12 **Q. Has the Commission ever granted an equity premium to account for its use of a**
13 **historical test year?**

14 A. No. To my knowledge, the Commission has never granted a ROE premium to account
15 for its use of a historical test year. The Commission should not grant an equity premium
16 to account for a historical test year in this case either. Moreover, the Commission in
17 Decision No.66849 dated March 19, 2004, stated that "... there is no precedent for
18 recognizing a risk adjustment because the law requires an historical test year (page 23,
19 lines 22-23)".

20

21 **Q. Would potential rate base disallowances increase Arizona Water's systematic risk**
22 **relative to the sample companies?**

23 A. No. Dr. Zepp has failed to show how potential rate base disallowances would increase the
24 Applicant's beta risk relative to the sample companies. All of the sample water companies
25 presumably face the risk of potential disallowances. Therefore, to the extent that it

1 covaries with the market portfolio at all, it is accounted for in Staff's market-based
2 analyses.

3
4 **Q. Have any regulatory agencies addressed the issue of rate base disallowances?**

5 A. Yes. In Docket No. 89-624 the FCC stated the following:

6
7 Nothing in the Constitution or in the Communications Act requires
8 the agency to adjust the prescribed rate of return to take into
9 account the agency's policies regarding rate base disallowances.

10
11 Dr. Zepp is trying to justify his proposed high returns on equity for Arizona Water by
12 adding irrelevant risks (unique risk) in the cost of equity.

13
14 *Elimination of the PPAM and PWAM*

15 **Q. On page 20 of his direct testimony, Dr. Zepp argues that the Applicant's cost of**
16 **equity should be higher than the ROE required by utilities in the water sample due**
17 **to the elimination of the PPAM and PWAM in the Eastern Group. Does Staff have**
18 **any comments?**

19 A. Yes. Dr. Zepp's position is based on a *company-specific* simulation analysis (study
20 developed in 2001 for California Water Service Company). Dr. Zepp has failed to
21 demonstrate that this company-specific analysis he previously prepared in 2001 is
22 representative and applicable to Arizona Water. In addition, he has not shown that all of
23 the water companies in the sample have purchased power and purchased water adjusters
24 similar to Arizona Water's recently eliminated PPAM and PWAM for the Eastern Group.
25

1 *EPA's New Arsenic Standard*

2 **Q. Dr. Zepp claims that Arizona Water has more risk than the water utilities in the**
3 **sample due to the new EPA arsenic requirement. Does Staff have any comments?**

4 A. To the extent that any risk related to EPA requirements is unique to Arizona Water, it
5 would not be priced by the market. The market does not price the unique risk of
6 securities.¹⁴ The new EPA arsenic requirement means that, at some point in the future,
7 Arizona Water will have to add rate base. However, this growth in the Company's assets
8 is simply *growth*, not risk. In addition, the Commission, in Decision No. 67518, dated
9 January 20, 2005, authorized the deferral of capital costs and expenses incurred by the
10 Applicant's Western group systems related to arsenic treatment.

11
12 **Q. Has the Commission agreed with Staff on this issue?**

13 A. Yes. In Arizona Water's Northern Group water system's rate case the Commission stated
14 in Decision No. 64282, dated December 28, 2001:

15
16 We do not agree with the Company's proposal to assign a risk
17 premium to Arizona Water based on ... the United States
18 Environmental Protection Agency's ("EPA") proposed revision to
19 the arsenic drinking water standards (Page 18 line 28 and Page 19
20 lines 1-3).

21
22 With respect to the EPA's standards, we note that all water
23 companies will be affected by the new rules and we do not believe
24 that the arsenic standards should be used to attach a higher level of
25 risk to Arizona Water (Page 19, lines 5-7).

26 The Commission should make the same finding in this Arizona Water rate case.
27

¹⁴ Weston, J. Fred, Thomas E. Copeland. P. 435.

1 *Use of Inverted Block Rates*

2 **Q. Does Staff have any comments on Dr. Zepp's statement that inverted block rates**
3 **create additional risk because they may "cause revenue erosion and instability."**
4 **(Zepp Direct, Page 23, line 12)?**

5 A. Yes. It seems that Dr. Zepp is implying that water demand is price elastic, but he has
6 failed to demonstrate or quantify his argument.

7
8 **Q. Has the Commission ever granted an equity premium to account for its use of**
9 **inverted block rates?**

10 A. To my knowledge, the Commission has not granted an equity premium due to the use of
11 inverted block rates. The Applicant has failed to show how an inverted block rate design
12 would impact the cost of equity. The Commission should not grant an equity premium to
13 account for the use of inverted block rates in this case either.

14
15 **Dr. Zepp's Testimony on the Market-to-Book Ratio**

16 **Q. Dr. Zepp offers several reasons for the market-to-book ratio of a regulated utility to**
17 **be above 1.0. Please comment.**

18 A. As stated previously in this testimony, rate orders do not force market-to-book ratios to
19 1.0 for a variety of reasons. However, the fact that market-to-book ratios for regulated
20 companies may be above 1.0 for any of the reasons cited by Staff or Dr. Zepp does not
21 mean that this basic proposition in finance is inaccurate. Professor Laurence Booth of the
22 Rotman School of Management at the University of Toronto recognizes different reasons
23 for the market-to-book ratio of a regulated utility to be above 1.0. Professor Booth also
24 states the following:
25

1 Theoretically, there is no question whatsoever that a market-to-
2 book ratio of 1.50 indicates that the [cost of equity] is less than the
3 [allowed rate of return on equity], *we have never even come across*
4 *a company witness who would disagree with that proposition.*¹⁵
5 (Emphasis added)

6

7 **Dr. Zepp's DCF estimates**

8 ***FERC one-step DCF***

9 **Q. Does Staff have any comments on Dr. Zepp's FERC one-step DCF estimates?**

10 A. Yes, Staff has two comments on Dr. Zepp's one-step DCF estimates:

11 1. Miscalculation of dividend yields. Staff disagrees with Dr. Zepp's calculation of
12 dividend yield based on historical prices. Only the most current spot stock price is
13 relevant.

14 2. Forecasted growth problem. Staff disagrees with Dr. Zepp's sole use of analysts'
15 forecasts to calculate the growth in dividends (g). This obviously causes inflated growth,
16 thus, inflated cost of equity estimates.

17

18 **Miscalculation of dividend yields**

19 **Q. Explain how Dr. Zepp's FERC one-step DCF estimates based on historical stock**
20 **prices are inappropriate.**

21 A. Dr. Zepp's calculation of dividend yield based on historical prices (highest and lowest
22 during the last six months) is inappropriate because only the most current spot stock price
23 is relevant. The dividend yield (D_1/P_0) represents the expected dividend yield for the next
24 period divided by the current spot stock price. Professor Myron Gordon, the father of
25 modern DCF analysis stated:

26

¹⁵ Booth, Laurence. "The Importance of Market-to-Book Ratios in Regulation." NRRI Quarterly Bulletin. Winter 1997. pp. 415 - 425.

1 The value assigned to P_0 should be the price of the
2 share at the time the share yield is being estimated.
3 The rationale for using the current price is that at
4 each point in time it reflects all the information
5 available to a company's investors regarding future
6 dividends.¹⁶

7

8 Moreover, in February 1, 1996, an article published in *Public Utilities Fortnightly* stated:

9

10 To the extent that prior yields form a reference
11 point for expectations of future yields, the
12 information content of historic yields is already
13 included in the current spot yield.¹⁷
14

15 In addition, Dr. Zepp is inconsistent when he explains the DCF method of estimating the
16 cost of equity and defines P_0 as the current stock price (Zepp Direct, page 28, line10), but
17 uses a combination of high-low historical stock prices when implementing his FERC one-
18 step DCF model.

19

20 By using historical prices to calculate the dividend yield on the DCF model, Dr. Zepp
21 disregards the efficient market hypothesis. In order to be consistent with the efficient
22 market hypothesis (key principle of modern corporate finance theory), the most recent
23 stock price is the only appropriate price that should be used when calculating the dividend
24 yield of the DCF model.

25

¹⁶ Testimony of professors Myron J. Gordon and Lawrence I. Gould, consultant to the Trial Staff (Common Carrier Bureau), FCC Docket 79-63, p. 63.

¹⁷ Kihm, Steven G. "The Superiority of Spot Yields in Estimating Cost of Capital." *Public Utilities Fortnightly*. February 1, 1996. pp. 42-45.

1 **Q. Has the Commission ruled on the use of spot market data in estimating the cost of**
2 **capital?**

3 A. Yes. In Decision No. 64727, dated April 17, 2002, the Commission agreed with Staff's
4 use of spot market data in estimating the cost of debt and equity.¹⁸

5
6 **Forecasted Growth Problem**

7 **Q. Is Dr. Zepp's sole reliance on analysts' forecasts for earnings growth appropriate to**
8 **forecast DPS growth?**

9 A. No. Dr. Zepp's sole reliance on analysts' forecasts of near-term earnings growth to
10 forecast DPS growth in his DCF analysis is inappropriate because it assumes that investors
11 do not look at other relevant information such as past dividend growth. In addition,
12 analysts' forecasts of near-term are known to be overly optimistic; therefore, exclusive
13 reliance on analyst's forecast for earnings growth to forecast DPS growth ultimately
14 would result in inflated costs of equity estimates.

15
16 **Q. In his direct testimony, Dr. Zepp cites a study conducted by David A. Gordon,**
17 **Myron J. Gordon and Lawrence I. Gould¹⁹ (Zepp Direct, page 30, footnote) to**
18 **support his view of the exclusive use of analysts forecasts in the DCF model. Does**
19 **Staff have any comments?**

20 A. Yes. The article cited by Dr. Zepp does not conclude that investors ignore past growth
21 when pricing stocks; therefore, it does not support the sole use of analysts' forecast in the
22 DCF model.

23

¹⁸ Application of Black Mountain Gas Company. Docket No. G-03703A-01-0263.

¹⁹ Gordon, David A., Myron J. Gordon, Lawrence I. Gould. "Choice Among Methods of Estimating Share Yield."
The Journal of Portfolio Management. Spring 1989. pp. 50-55.

1 **Q. Has Professor Gordon recommended sole reliance of analysts' forecast as a measure**
2 **of growth in the DCF model?**

3 A. No. Subsequent to the study cited by Dr. Zepp²⁰, Professor Gordon provided the keynote
4 address at the 30th Financial Forum of the Society of Utility and Regulatory Financial
5 Analysts, in which he stated:

6 I understand that companies coming before regulatory agencies
7 liked and advocated the high growth rates in security analyst
8 forecasts for arriving at their cost of equity capital. Instead of
9 rejecting these forecasts, I understand that FERC and other
10 regulatory agencies have decided to compromise with them. In
11 particular, in arriving at the cost of equity for company X, the
12 FERC has decided to arrive at the growth rate in my dividend
13 growth model by using an average of two growth rates. One is
14 security analysts forecast of the short-term growth rate in earnings
15 provided by IBES or Value Line and the other a more long run and
16 typically lower figure such as the past growth in GNP.

17
18 Such an average can be questioned on various grounds. However,
19 my judgment is that between the short-term forecast alone and its
20 average with the past growth rate in GNP, *the latter may be a more*
21 *reasonable figure.*²¹ (Emphasis added)

22
23 **Q. How does Staff respond to Dr. Zepp's statement that, "Logically, financial**
24 **institutions and analysts would have taken such past information into account, and**
25 **other recent information, when they make their forecasts for the future"?** (Zepp
26 **Direct, Page 30, line 13-15)**

27 A. The appropriate growth rate to use in the DCF formula is the dividend growth rate
28 expected by *investors*, not analysts. Therefore, while it may be true that analysts may
29 have considered historical measures of growth, it is a reasonable to assume that investors

²⁰ Gordon, David A., Myron J. Gordon, Lawrence I. Gould

²¹ Gordon, M. J. Keynote Address at the 30th Financial Forum of the Society of Utility and Regulatory Financial Analysts. May 8, 1998. Transparency 3.

1 rely to some extent on past growth as well. This warrants consideration of both: analysts'
2 forecasts and past growth.

3
4 **Q. You mentioned earlier that sole reliance on analysts' forecast for earnings growth in**
5 **the DCF model would result in inflated cost of equity estimates. Can you provide**
6 **further evidence supporting this statement?**

7 A. Yes. Experts in the financial community have commented on the optimism in analysts'
8 forecasts of future earnings.²² A study cited by David Breman in his book Contrarian
9 Investment Strategies: The Next Generation found that *Value Line* analysts were
10 optimistic in their forecasts by 9 percent annually, on average for the 1987 – 1989 period.
11 Another study conducted by David Dreman found that between 1982 and 1997, analysts
12 overestimated the growth of earnings of companies in the S&P 500 by 188 percent.

13
14 Burton Malkiel of Princeton University studied the one-year and five-year earnings
15 forecasts made by some of the most respected names in the investment business. His
16 results showed that the five-year estimates of professional analysts, when compared with
17 actual earnings in growth rates, were much worse than the predictions from several naïve
18 forecasting models, such as the long-run rate of growth of national income. In the
19 following excerpt from Professor Malkiel's book A Random Walk Down Wall Street, he
20 discusses the results of his study:

²² See Seigel, Jeremy J. Stocks for the Long Run. 2002. McGraw-Hill. New York. p. 100. Dreman, David. Contrarian Investment Strategies: The Next Generation. 1998. Simon & Schuster. New York. pp. 97-98. Malkiel, Burton G. A Random Walk Down Wall Street. 2003. W.W. Norton & Co. New York. p. 175. Testimony of Professors Myron J. Gordon and Lawrence I. Gould, consultant to the Trial Staff (Common Carrier Bureau), FCC Docket 79-63, p. 95.

1 When confronted with the poor record of their five-year growth
2 estimates, *the security analysts honestly, if sheepishly, admitted*
3 *that five years ahead is really too far in advance to make reliable*
4 *projections.* They protested that although long-term projections
5 are admittedly important, they really ought to be judged on their
6 ability to project earnings changes one year ahead. Believe it or
7 not, it turned out that their one-year forecasts were even worse than
8 their five-year projections.

9 The analysts fought back gamely. They complained that it was
10 unfair to judge their performance on a wide cross section of
11 industries, because earnings for high-tech firms and various
12 “cyclical” companies are notoriously hard to forecast. *“Try us on*
13 *utilities,” one analyst confidently asserted. At the time they were*
14 *considered among the most stable group of companies because of*
15 *government regulation. So we tried it and they didn’t like it. Even*
16 *the forecasts for the stable utilities were far off the mark.*
17 (Emphasis added)

18
19 **Q. Would investors be aware of the problems related to analysts’ forecasts?**

20 A. Yes. In addition to books, there are numerous published articles appearing in The Wall
21 Street Journal and other financial publications that cast doubt as to how accurate research
22 analysts are in their forecasts.²³ To the extent that investors are aware of the bias in
23 analysts’ projections of future earnings, they will make appropriate adjustments.

24
25 **Q. Dr. Zepp did not consider DPS growth in his DCF analysis. Should he have**
26 **considered DPS growth?**

27 A. Yes. Dr. Zepp’s not considering DPS growth in his DCF analysis implies that investors
28 do not take into account DPS growth when pricing stocks. Again, as previously

²³ See Smith, Randall & Craig, Suzanne. “Big Firms Had Research Ploy: Quiet Payments Among Rivals.” *The Wall Street Journal*. April 30, 2003. Brown, Ken. “Analysts: Still Coming Up Rosy.” *The Wall Street Journal*. January 27, 2003. p. C1. Karmin, Craig. “Profit Forecasts Become Anybody’s Guess.” *The Wall Street Journal*. January 21, 2003. p. C1. Gasparino, Charles. “Merrill Lynch Investigation Widens.” *The Wall Street Journal*. April 11, 2002. p. C4. Elstein, Aaron. “Earnings Estimates Are All Over the Map.” *The Wall Street Journal*. August 2, 2001. p. C1. Dreman, David. “Don’t Count on those Earnings Forecasts.” *Forbes*. January 26, 1998. p. 110.

1 mentioned earlier in this testimony (Page 14), the current market price of a stock is equal
2 to the present value of all expected future dividends not earnings. Professor Jeremy Siegel
3 from the Wharton School of finance stated:

4 Note that the price of the stock is always equal to the present value
5 of all future *dividends* and not the present value of future earnings.
6 Earnings not paid to investors can have value only if they are paid
7 as dividends or other cash disbursements at a later date. Valuing
8 stock as the present discounted value of future earnings is
9 manifestly wrong and greatly overstates the value of the firm.²⁴

10
11 **Q. Has Dr. Zepp previously agreed with the assumption that investors would take into**
12 **account DPS growth as well as EPS growth?**

13 **A. Yes. In a 1999 Oregon proceeding, when asked if investors preferred DPS growth or EPS**
14 **growth, Dr. Zepp testified:**

15 *According to me, investors would look at both, but this particular*
16 *testimony here refers to your testimony, in which you didn't look*
17 *at earnings per share growth. And my point is, if you're only*
18 *going to look at one – in my view, if you were only going to look*
19 *at one, investors would look at earnings per share growth. That's*
20 *the testimony, and I still stand by that testimony, but as I've stated,*
21 *I would look at both.*²⁵ (Emphasis added)

22 Additionally, Dr. Zepp testified in the same proceeding:

23 Investors would examine past and forecasted growth in earnings
24 per share ("EPS"), *dividends per share ("DPS")* and other trends
25 that provide indications about what future growth would be.²⁶

²⁴ Siegel, Jeremy J. *Stocks for the Long Run*, third edition. McGraw-Hill, New York. 2002. P. 93.

²⁵ Sworn Testimony of Dr. Thomas M. Zepp, dated January 21, 1999. Before the Public Utility Commission of Oregon. Docket UM 903. p. 9 at 19 – 25 and p. 10 at 1 – 3.

²⁶ Rebuttal Testimony of Thomas M. Zepp, dated December 17, 1998. Before the Public Utility Commission of Oregon. Docket UM 903. p. 17 at 12-14.

1 Based on his own testimony in a previous proceeding, Dr. Zepp should have considered
2 DPS growth in his DCF analysis.

3

4 **Q. Has the Commission stated its position in regard to exclusive reliance on analyst
5 forecasts?**

6 **A.** Yes. The Commission, in Decision No. 66849, dated March 19, 2004, stated that:

7

8 "...the Company's exclusive reliance on analyst forecasts
9 erroneously assumes that investors rely only on near-term earnings
10 and sustainable growth without considering past earnings. Reliance
11 solely on analyst projections tends to result in inflated growth
12 projections without considering DPS and past EPS growth... (Page
13 22, lines 14-17)"

14

15 *FERC two-step DCF model*

16 **Q. Does Staff have any comments on Dr. Zepp's FERC two-step DCF?**

17 **A.** Yes, Staff disagrees with Dr. Zepp's exclusive reliance on forecasted earnings growth for
18 the near-term (Stage -1 growth). As mentioned before, exclusive reliance on forecasted
19 earnings growth likely results in inflated cost of equity estimates. Dr. Zepp ignores the
20 fact that the DCF model is predicated on DPS growth.

21

22 **Forecasted Growth Problem**

23 **Q. Does Staff have any comments on Dr. Zepp's reliance on forecasted earnings growth
24 for the near-term ("Stage -1 growth") in his two-step DCF model?**

25 **A.** Yes. As mentioned earlier, analysts' forecasts of earnings growth are known to be overly
26 optimistic; therefore, exclusive reliance on analysts' forecasts of earnings growth to
27 forecast DPS growth for the near-term would result in inflated cost of equity estimates
28 (Page 43). The market price reflects the discounted value of investors' expected

1 dividends. While it is true that earnings allow dividends to be paid, DPS is the relevant
2 factor in the near-term (Stage-1 growth) if investors expect the companies to pay a
3 decreasing portion of earnings.

4
5 **Dr. Zepp's "Risk Premium" Method**

6 **Q. Please describe Dr. Zepp's "risk premium" analysis.**

7 A. Dr. Zepp examines the difference between the returns on proxies for Arizona Water and
8 treasury yields. He performed three studies and calculated three ranges of risk premia. He
9 then adds these risk premia to a range of consensus forecasts of the treasury rate compiled
10 by *Blue Chip Financial Forecasts* and *Value Line*.

11
12 **Q. In general, is Dr. Zepp's "risk premium" method valid to estimate Arizona Water's
13 cost of equity?**

14 A. No. Dr. Zepp's risk premium method is not valid to estimate Arizona Water's cost of
15 equity because it relies on forecasts of 10-year treasury securities, long-term treasury
16 securities and Baa corporate bond rates. The Commission should not rely on forecasts of
17 interest rates. Analysts who forecast future rates do not have any more information about
18 the future than what is already reflected in the current rate.

19
20 Relying on interest rate forecasts unnecessarily introduces forecasting error into cost of
21 capital calculation. Cost of capital estimation errors should be minimized, not enlarged.

22
23 According to Nancy L. Jacob of the University of Washington and R. Richardson Pettit of
24 the University of Houston:

25

1 While we know something about many of the factors that
2 *determine* interest rates (money supply, the demand for loanable
3 funds, etc.) little evidence exists to suggest these factors can be
4 predicted with enough accuracy to successfully *predict* the rates.²⁷
5

6 This is consistent with the efficient markets hypothesis.
7

8 **Q. Should interest rate forecasts made by professional analysts be relied on to estimate**
9 **the cost of equity?**

10 A. No. Forecasted interest rate projections should not be relied upon to estimate the cost of
11 equity for the same reasons historical prices should not be used to calculate expected
12 dividends in a DCF analysis. As previously stated, the best forecast of tomorrow's yield is
13 simply today's yield. "Professional forecasts of financial variables are notoriously
14 unreliable and appear to be getting worse, not better, over time." "The direction of
15 interest rates [bond yields] cannot be predicted any better than by the flip of a coin."²⁸
16

17 **Q. Dr. Zepp states that the relevant rate used to determine the cost of equity is a**
18 **forecasted rate because "...it is the period in which Arizona Water's new rates will**
19 **first be put into place." (Zepp's Direct Testimony, page 41, lines 19 & 20) How does**
20 **Staff respond to this statement?**

21 A. Dr. Zepp's statement ignores the fact that the purpose of Staff's analysis is to estimate the
22 *current* cost of equity to Arizona Water. The Commission could very well make an
23 estimate of the current cost of equity on the day an order is issued in this proceeding.
24 However, the Commission should not rely on a forecasted rate that is as accurate a
25 predictor as that of a coin toss.

²⁷ Jacob, Nancy L., R. Richardson Pettit. *Investments*. Irwin. Homewood, Ill. 1988. p. 499.

²⁸ Kihm, Steven G. "The Superiority of Spot Yields in Estimating Cost of Capital." *Public Utilities Fortnightly*. February 1, 1996. pp. 42 - 45.

1 **Q. How does Staff respond to Dr. Zepp's argument that the Arizona Corporation**
2 **Commission Staff has relied on forecasts of interest rates to determine the**
3 **reasonableness of equity cost estimates (Dr. Zepp Direct Testimony, Page 41)?**

4 A. Staff since then, has minimized forecasting error into cost of capital calculation. As it was
5 previously stated, cost of capital estimation errors should be minimized, not enlarged. In
6 addition, Staff has reviewed the copies provided by Arizona Water of the testimonies of
7 Linda Jaress, dated December 2, 1991 (Docket No. U-1656-91-134) and J. David. Daer,
8 dated April 19, 1993 (Docket No. U-1303-92-286). Linda Jaress stated in her testimony
9 that "Blue Chip Financial Forecasts...projects the Prime Rate, which is currently 7.5
10 percent will have risen to eight percent by the third quarter of 1992..." In reality, by the
11 end of the third quarter of 1992, the Prime Rate was only 6.0 percent²⁹; two hundred (200)
12 basis points *less* than what Blue Chip Financial Forecasts had forecasted. This shows how
13 inaccurate professional analysts are at predicting future interest rates and why Staff no
14 longer relies upon their interest forecasting.

15
16 *Dr. Zepp's First Risk Premium Study*

17 **Q. What is Dr. Zepp's first study?**

18 A. Dr. Zepp's first study is based on the difference between past accounting returns on equity
19 for the six water utilities in Dr. Zepp's and Staff's sample water companies and average
20 annual treasury rates. Dr. Zepp assumes that accounting returns on equity equal the cost
21 of equity.

²⁹ Federal Reserve.

1 **Q. Does Staff have any specific concerns regarding Dr. Zepp's first study?**

2 A. Yes. As previously commented, Staff is concerned with Dr. Zepp's reliance on forecasted
3 treasury rates. Moreover, replacing Dr. Zepp's forecasted interest rates with the spot
4 yields of the treasury securities³⁰ would result in a cost of equity estimate for the water
5 utilities sample of 9.6 (when using the long-term treasury) and 9.7 percent (when using
6 the 10-year treasury). Schedule AXR-9 presents Dr. Zepp's first premium analysis using
7 spot yields for the treasury securities instead of forecasted. These costs of equity
8 estimates are very similar to Staff's historical market risk premium CAPM cost of equity
9 estimate of 9.6 percent.

10
11 In addition, Staff is concerned with Dr. Zepp's assumption that accounting returns on
12 equity equal the cost of equity. On page 39 of this testimony, Staff provided a quote from
13 Professor Laurence Booth. Professor Booth stated in a *NRRI Quarterly Bulletin* article
14 that "theoretically, there is no question whatsoever that a market-to-book ratio of 1.50
15 indicates that the [cost of equity] is less than the [allowed ROE]." Professor Booth has
16 never come across a company witness who would disagree with that proposition.³¹ The
17 sample water companies have an average market-to-book ratio of 2.4. Therefore, it is
18 unreasonable for Dr. Zepp to assume that equity costs equal accounting returns on equity.

19
20 *Dr. Zepp's Second Risk Premium Study*

21 **Q. What is Dr. Zepp's second study?**

22 A. Dr. Zepp's second study is based on the difference between previously authorized ROEs
23 on equity for sample water companies and average annual treasury rates. Dr. Zepp

³⁰ According to March 24, 2005, edition of *The Wall Street Journal*: 4.60% (10-year treasury) and 4.86 (long-term treasury).

³¹ Professor Booth is a colleague of Myron Gordon, who has been characterized in this testimony as the father of modern DCF analysis.

1 assumes that ROEs authorized by regulatory commissions provide proxies for the cost of
2 equity. As previously stated in my testimony, the capital markets determine the cost of
3 equity, not regulatory commissions. Dr. Zepp states in his direct testimony “To estimate
4 that cost of equity, the analyst requires market data that reveal investors’ required
5 returns...” (Dr. Zepp Direct, Page 27, lines 16-18), yet, he uses authorized ROEs in his
6 second risk premium analysis as proxies for the cost of equity. In addition, Dr. Zepp
7 disregards that the Office of Ratepayers Advocates’ (“ORA”) Staff has rejected the use of
8 authorized ROE as an accurate measure of what is expected by investors.³² Further, this
9 Commission has no way of knowing how these other cases were resolved. Allowed
10 returns often reflect various incentives and disincentives put into place by each state
11 commission for various purposes which likely do not, and would not, apply to Arizona
12 Water. This Commission cannot rely on previously authorized ROEs because it cannot
13 know the particulars behind each case nor could it cross-examine witnesses in those cases
14 even if it did know the particulars.

15
16 In addition, by using past authorized ROEs, Dr. Zepp disregards that “A rate of return may
17 be reasonable at one time and become too high or too low by changes affecting
18 opportunities of investment, the money market, and business conditions generally.”³³

19
20 **Q. Is Dr. Zepp’s second study appropriate?**

21 **A.** No. The Commission should not rely on Dr. Zepp’s second study for the reasons stated
22 above with respect to authorized ROEs granted by other commissions in other
23 jurisdictions.

³² CPUC Staff Cost of Capital Report, A.03-07-036, January 2004.

³³ U.S. Supreme Court in *Bluefield Water works & Improvement Co. v. Public Utility Commission of West Virginia*,
262 U.S. 679 (1923).

1 *Dr. Zepp's Third Risk Premium Study*

2 **Q. What is Dr. Zepp's third study?**

3 A. Dr. Zepp's third study was implemented in three steps. This study is based on the
4 difference between past accounting returns on equity for sample water companies and
5 annual average Baa rates. Dr. Zepp finds the average earned ROE, Baa rate and "risk
6 premium" for the two periods (1985-1992 and 1993-2002).

7
8 **Q. Is his third risk premium study appropriate?**

9 A. No. As mentioned before, Staff is concerned with the use of forecasted interest rates and
10 Dr. Zepp's assumption that accounting returns on equity equal the cost of equity.

11
12 **Q. Dr. Zepp tries to corroborate his estimates and recommendations by listing nine (9)**
13 **past decisions for large water and gas utilities in Arizona and concurrent 10-year**
14 **treasury rates. In addition, he states that "Implementation of finance models that**
15 **lead to such low ROEs are inconsistent with ROEs this Commission authorized..."**
16 **(Dr. Zepp Direct, Page 48, Lines 4 - 6). Does Staff have any comments on this?**

17 A. Yes. First, Dr. Zepp is mixing water utilities and gas utilities in the same group.
18 Implicitly, he is assuming that water and gas utilities have the same market risk. Second,
19 the use of authorized ROEs to estimate the cost of equity is flawed as mentioned earlier.
20 Third, as mentioned above, the use of forecasted interest rates to estimate the cost of
21 equity is inappropriate. Dr. Zepp fails to corroborate that his estimates are reasonable.

22

1 **CONCLUSION**

2 **Q. Please summarize Staff's recommendations.**

3 A. Staff recommends the Commission adopt a 9.1 percent ROE, an 8.4 percent cost of long-
4 term debt, and an 8.9 percent rate of return. Staff recommends the Commission give little
5 weight to the testimony of the Company's witness, Dr. Thomas Zepp. Staff disagrees with
6 his methods and his estimates are not representative of current costs of equity.

7

8 **Q. Does this conclude your direct testimony?**

9 A. Yes, it does.

Arizona Water Company -Western Group-
 Staff's Recommended
 Capital Structure
 And Weighted Cost of Capital

| (A) | (B) | (C) | (D) |
|--------------------------------------|-------------------|-------------|----------------------|
| <u>Description</u> | <u>Weight (%)</u> | <u>Cost</u> | <u>Weighted Cost</u> |
| Long-term Debt | 26.6% | 8.4% | 2.20% |
| Common Equity | 73.4% | 9.1% | <u>6.70%</u> |
| Weighted Average Cost of Capital/ROR | | | <u>8.9%</u> |

Arizona Water Company - Western Group -
Average Capital Structure of Sample Water Utilities

| [A] | [B] | [C] | [D] |
|--------------------------------------|-----------------------|----------------------|---------------|
| <u>Company</u> | <u>Long-Term Debt</u> | <u>Common Equity</u> | <u>Total</u> |
| American States Water | 49.2% | 50.8% | 100.0% |
| California Water | 49.7% | 50.3% | 100.0% |
| Aqua America | 53.0% | 47.0% | 100.0% |
| Connecticut Water | 43.1% | 56.9% | 100.0% |
| Middlesex Water | 55.4% | 44.6% | 100.0% |
| SJW Corp | <u>46.8%</u> | <u>53.2%</u> | <u>100.0%</u> |
| Average Sample Water Utilities | 49.5% | 50.5% | 100.0% |
| Arizona Water Company - Western Grou | 26.6% | 73.4% | 100.0% |

Source: Value Line, Arizona Water's application

Arizona Water Company - Western Group-
Growth in Earnings and Dividends
Sample Water Utilities

| [A] | [B] | [C] | [D] | [E] |
|--------------------------------|--|---|---|--|
| Company | Dividends Per Share 1993 to 2003 <u>DPS</u> | Dividends Per Share Projected <u>DPS</u> | Earnings Per Share 1993 to 2003 <u>EPS</u> | Earnings Per Share Projected <u>EPS</u> |
| American States Water | 1.1% | 1.8% | -4.2% | 22.7% |
| California Water | 1.6% | 1.0% | -1.1% | 10.6% |
| Aqua America | 5.5% | 7.2% | 8.7% | 9.6% |
| Connecticut Water | 1.3% | No Projection | 2.6% | No Projection |
| Middlesex Water | 2.5% | No Projection | -0.9% | No Projection |
| SJW Corp | <u>3.6%</u> | <u>No Projection</u> | <u>4.2%</u> | <u>No Projection</u> |
| Average Sample Water Utilities | 2.6% | 3.3% | 1.5% | 14.3% |

Source: Value Line

Arizona Water Company - Western Group-
 Intrinsic Growth
 Sample Water Utilities

| [A] | [B] | [C] | [D] | [E] | [F] |
|--------------------------------|---|--|------------------------------------|--|---|
| Company | Retention Growth 1994 to 2003 br | Retention Growth Projected br | Stock Financing Growth vs | Intrinsic Growth 1994 to 2003 br + vs | Intrinsic Growth Projected br + vs |
| American States Water | 2.5% | 5.5% | 1.1% | 3.6% | 6.6% |
| California Water | 2.5% | 4.5% | 1.6% | 4.1% | 6.1% |
| Aqua America | 4.0% | 6.0% | 6.9% | 10.9% | 12.9% |
| Connecticut Water | 3.0% | No Projection | 0.6% | 3.5% | No Projection |
| Middlesex Water | 1.7% | No Projection | 3.3% | 5.0% | No Projection |
| SJW Corp | 4.8% | No Projection | 0.0% | 4.8% | No Projection |
| Average Sample Water Utilities | 3.1% | 5.3% | 2.2% | 5.3% | 8.5% |

Source: Value Line, MSN Money

Arizona Water Company - Western Group-
Selected Financial Data of Sample Water Utilities

| [A] | [B] | [C] | [D] | [E] | [F] | [G] |
|-----------------------|--------|-----------------------|-----------------------|----------------|----------------------------|------------------------------|
| Company | Symbol | Spot Price 3/23/05 | Book Value 3/23/05 | Mkt To Book | Value Line Beta β | Raw Beta β_{raw} |
| American States Water | AWR | 25.11 | 14.81 | 1.7 | 0.70 | 0.52 |
| California Water | CWT | 33.1 | 15.42 | 2.1 | 0.75 | 0.60 |
| Aqua America | WTR | 23.96 | 7.37 | 3.3 | 0.75 | 0.60 |
| Connecticut Water | CTWS | 24.95 | 10.83 | 2.3 | 0.65 | 0.45 |
| Middlesex Water | MSEX | 17.8 | 7.72 | 2.3 | 0.65 | 0.45 |
| SJW Corp | SJW | 36.01 | 18.40 | <u>2.0</u> | <u>0.55</u> | <u>0.30</u> |
| Average | | | | 2.3 | 0.68 | 0.49 |

Source: Msn Money, Value Line

Arizona Water Company - Western Group -
 Calculation of Expected Infinite Annual Growth in Dividends
 Sample Water Utilities

| [A] | [B] |
|-------------------------------------|-------------|
| <u>Description</u> | g |
| DPS Growth - Historical | 2.6% |
| DPS Growth - Projected | 3.3% |
| EPS Growth - Historical | 1.5% |
| EPS Growth - Projected | 14.3% |
| Intrinsic Growth - Historical | 5.3% |
| <u>Intrinsic Growth - Projected</u> | <u>8.5%</u> |
| Average | 5.9% |

Supporting Schedules: Schedule AXR-3 and Schedule AXR-4

Arizona Water Company -Western Group-
Multi-Stage DCF Estimates
Sample Water Utilities

| [A] | [B] | [C] | [D] | [E] | [F] | [H] | [I] |
|-----------------------|------------------------------|---|-------|-------|-------|---------------------------------------|------------------------------|
| Company | Current Mkt. Price (P_0) | Projected Dividends ¹ (stage 1 growth) (D_t) | | | | Stage 2 growth ² (g_n) | Equity Cost Estimate (K) |
| | | d_1 | d_2 | d_3 | d_4 | | |
| American States Water | 25.1 | 0.90 | 0.92 | 0.94 | 0.96 | 6.5% | 9.7% |
| California Water | 33.1 | 1.14 | 1.15 | 1.17 | 1.18 | 6.5% | 9.5% |
| Aqua America | 24.0 | 0.52 | 0.56 | 0.60 | 0.65 | 6.5% | 8.7% |
| Connecticut Water | 25.0 | 0.86 | 0.90 | 0.93 | 0.96 | 6.5% | 9.7% |
| Middlesex Water | 17.8 | 0.68 | 0.71 | 0.73 | 0.76 | 6.5% | 10.1% |
| SJW Corp | 36.0 | 1.08 | 1.12 | 1.16 | 1.20 | 6.5% | 9.3% |

Average **9.5%**

$$P_0 = \sum_{t=1}^n \frac{D_t}{(1+K)^t} + \frac{D_n(1+g_n)}{K-g_n} \left[\frac{1}{(1+K)} \right]^n$$

- Where : P_0 = current stock price
 D_t = dividends expected during stage 1
 K = cost of equity
 n = years of non - constant growth
 D_n = dividend expected in year n
 g_n = constant rate of growth expected after year n

1 d_t = "Est'd Div'd next 12 mos." 03/25/2005, Value Line Summary & Index.
 2 Average annual growth in GDP 1929 - 2003 in current dollars. <http://www.bea.doc.gov/>

Arizona Water Company -Western Group-
 Final Cost of Equity Estimates
 Sample Water Utilities

| [A] | [B] | [C] | [D] | [E] |
|----------------------------------|------|-------------------------|----------------|-----------------------|
| DCF Method | | | | |
| Constant Growth DCF Estimate | | $\frac{D_1/P_0}{3.2\%}$ | + | $\frac{k}{9.1\%}$ |
| Multi-Stage DCF Estimate | | | + | $\frac{9.5\%}{9.3\%}$ |
| Average of DCF Estimates | | | | 9.3% |
| CAPM Method | | | | |
| Historical Market Risk Premium | Rf | β | x | $\frac{k}{9.6\%}$ |
| Current Market Risk Premium | 4.5% | 0.68 | x | $\frac{8.8\%}{9.2\%}$ |
| Average of CAPM Estimates | 4.5% | 0.68 | x | 9.2% |
| | | | Average | 9.3% |

Source: The Wall Street Journal, Value Line, Ibbotson Associates S&P 500 2004 Yearbook
 Supporting Schedules: Schedule AXR-7

Arizona Water Company -Western Group-

Dr. Zepp's Re-stated First Risk Premium Equity Cost Analysis
Realized ROEs Adopted as Equity Cost Proxies

| | Return on Equity ^{-a/} | <u>Annual Averages</u> | | Risk Premiums | |
|--|---------------------------------------|--------------------------------------|------------------------------------|-----------------------|---------------------|
| | | Long-term Treasury ^{-a/} | 10-Year Treasury ^{-a/} | Long-term Treasury | 10-Year Treasury |
| 1993 | 11.57% | 6.60% | 5.87% | 4.97% | 5.70% |
| 1994 | 10.87% | 7.35% | 7.09% | 3.52% | 3.78% |
| 1995 | 11.20% | 6.88% | 6.57% | 4.32% | 4.63% |
| 1996 | 12.02% | 6.70% | 6.44% | 5.32% | 5.58% |
| 1997 | 11.82% | 6.60% | 6.35% | 5.22% | 5.47% |
| 1998 | 10.90% | 5.58% | 5.26% | 5.32% | 5.64% |
| 1999 | 10.59% | 5.87% | 5.65% | 4.72% | 4.94% |
| 2000 | 9.75% | 5.94% | 6.03% | 3.81% | 3.72% |
| 2001 | 10.27% | 5.49% | 5.02% | 4.78% | 5.25% |
| 2002 | 10.58% | 5.41% | 4.61% | 5.17% | 5.97% |
| 10-Year Average Premium ^{-a/} | | | | 4.72% | 5.07% |
| 5-year Average Premium ^{-a/} | | | | 4.76% | 5.10% |
| Long-term Treasury and 10-year Treasury Yields (February 16, 2005) | | | | 4.86% | 4.60% |
| Projected Returns on Equity | | | | | |
| 10-Year Average | | | | 9.6% | 9.7% |
| 5-Year Average | | | | 9.6% | 9.7% |