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BEFORE THE ARIZONA CORPORATION

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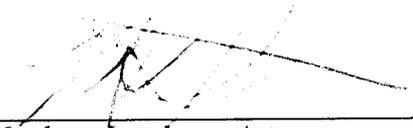
IN THE MATTER OF THE APPLICATION OF
ABRA WATER COMPANY, AN ARIZONA
CORPORATION, FOR A DETERMINATION
OF THE CURRENT FAIR VALUE OF ITS
UTILITY PLANT AND PROPERTY AND FOR
INCREASES IN ITS RATES AND CHARGES
FOR UTILITY SERVICE.

DOCKET NO. W-01782A-14-0084

STAFF'S NOTICE OF FILING DIRECT
TESTIMONY

Staff of the Arizona Corporation Commission ("Staff") hereby files the Direct Testimony of
Brendan Aladi, Jian Liu and Crystal S. Brown in the above docket.

RESPECTFULLY SUBMITTED this 15th day of August 2014.

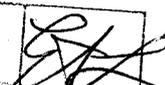

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Original and thirteen (13) copies
of the foregoing filed this
15th day of August 2014 with:

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Arizona Corporation Commission
DOCKETED

AUG 15 2014

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Kayla Christine

BEFORE THE ARIZONA CORPORATION COMMISSION

BOB STUMP

Chairman

GARY PIERCE

Commissioner

BRENDA BURNS

Commissioner

BOB BURNS

Commissioner

SUSAN BITTER SMITH

Commissioner

IN THE MATTER OF THE APPLICATION OF)
ABRA WATER COMPANY, INC. AN ARIZONA)
CORPORATION, FOR DETERMINATION OF THE)
CURRENT FAIR VALUE OF ITS UTILITY)
PLANT AND PROPERTY AND FOR)
INCREASES IN ITS RATES AND CHARGES)
FOR UTILITY SERVICE)
_____)

DOCKET NO. W-01782A-14-0084

DIRECT

TESTIMONY

OF

BRENDAN C. ALADI

PUBLIC UTILITIES ANALYST III

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

AUGUST 15, 2014

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**EXECUTIVE SUMMARY
ABRA WATER COMPANY
DOCKET NO. W-01782A-14-0084**

Abra Water Company, Inc. ("Abra" or "Company") is an Arizona for-profit Class C public service corporation engaged in providing water utility services to approximately 655 customers in and around the city of Paulden, County of Yavapai, Arizona. On March 11, 2014, Abra filed a general rate application. Abra's current rates were approved in Decision No. 72287, dated May 4, 2011.

The Company proposes a \$43,349, or 16.05 percent revenue increase from \$270,040 to \$313,389. The proposed revenue increase would produce an operating income of \$50,482 for an 8.85 percent rate of return on a proposed fair value rate base ("FVRB") of \$570,570 which is also the proposed original cost rate ("OCRB"). The Company's proposed rates would increase the typical residential 5/8 x 3/4-inch meter bill with a median usage of 5,500 gallons from \$28.76 to \$34.48, for an increase of \$5.72 or 19.87 percent.

Staff is effectively recommending a \$3,894 or 1.44 percent revenue increase for the Company. However, Staff identified a problem within the Company's test year bill count generated revenue calculations and as a result, Staff believes that current rates will actually generate higher revenues by approximately this same \$3,894 amount. Therefore, Staff recommends no adjustment to currently approved rates. Staff's adjusted OCRB is \$461,824 as shown on Schedule BCA-1.

1 **INTRODUCTION**

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

3 A. My name is Brendan C. Aladi. I am a Public Utilities Analyst III employed by the Arizona
4 Corporation Commission ("Commission") in the Utilities Division ("Staff"). My business
5 address is 1200 West Washington Street, Phoenix, Arizona 85007.

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

8 A. I am responsible for the examination and verification of financial and statistical information
9 included in utility rate applications. In addition, I develop revenue requirements, prepare
10 written reports, testimonies, and schedules that include Staff recommendations to the
11 Commission. I am also responsible for testifying at formal hearings on these matters.

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

14 A. I received a Bachelor of Science Degree in Accounting from Central State University, in
15 Wilberforce, Ohio and a Masters of Arts Degree in Accounting from the University of
16 Illinois, at Springfield.

17
18 Since joining the Commission in 2007, I have participated in numerous rate cases and other
19 regulatory proceedings involving water, and wastewater utilities. I have testified on matters
20 involving regulatory accounting and auditing. Additionally, I have attended utility-related
21 seminars sponsored by the National Association of Regulatory Utility Commissioners
22 ("NARUC") on ratemaking and accounting designed to provide continuing and updated
23 education in these areas.

24

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

2 A. The purpose of my testimony is to present Staff's analysis and recommendations regarding
3 the Abra Water Company, Inc.'s ("Abra" or "Company") application for a permanent rate
4 increase. I am presenting recommendations in the area of rate base, operating revenue,
5 revenue requirement and rate design. Staff witness, Crystal Brown, is presenting Staff's cost
6 of capital recommendations. Staff witness, Jian Liu, is presenting Staff's engineering analysis
7 and recommendations.

8
9 **Q. What is the basis of Staff's recommendations?**

10 A. I have performed a regulatory audit of the Company's application to determine whether
11 sufficient, relevant, and reliable evidence exists to support the Company's requested rate
12 increase. The regulatory audit consisted of examining and testing the financial information,
13 accounting records, and other supporting documentation and verifying that the accounting
14 principles applied were in accordance with the Commission-adopted NARUC Uniform
15 System of Accounts ("USOA").

16
17 **Q. How is your testimony organized?**

18 A. My testimony is presented in eleven sections. Section I is this introduction. Section II
19 provides background of the Company. Section III is a summary of consumer service and
20 compliance issues. Section IV is a summary of proposed revenues. Section V is a summary
21 of Staff's rate base and operating income adjustment. Section VI presents Staff's rate base
22 recommendations. Section VII presents Staff's operating income recommendations. Section
23 VIII discusses revenue requirement. Section IX discusses rate design, Section V discusses
24 Service Charges and Section XI discusses fire sprinkler charges.

1 **Q. Have you prepared any schedules to accompany your testimony?**

2 A. Yes, I prepared schedules BCA-1 to BCA-25.

3

4 **BACKGROUND**

5 **Q. Please provide a brief description of Abra and the service it provides.**

6 A. Abra is an Arizona public service corporation, serving approximately 655 customers in and
7 around the city of Paulden, Yavapai County, Arizona. Abra's current rates were approved in
8 Decision No. 72287, dated May 4, 2011.

9

10 **Q. What are the primary reasons for Abra's requested permanent rate increase?**

11 A. According to Abra, the primary reason is to recover its operating expenses and to earn a just
12 and reasonable rate of return.

13

14 **CONSUMER SERVICE**

15 **Q. Please provide a brief history of customer complaints received by the Commission
16 regarding Abra.**

17 A. Staff reviewed the Commission's records and found that there were no complaints filed
18 against Abra for the period of January 1, 2011 to July 7, 2014. In 2014, there was one
19 opinion opposing the instant rate case.

20

21 **COMPLIANCE**

22 **Q. Please provide a summary of the compliance status of Abra.**

23 A. A check of the Compliance database indicates that there are currently no delinquencies for
24 Abra.

25

26 **SUMMARY OF PROPOSED REVENUES**

1 **Q. Please summarize the Company's filing.**

2 A. The Company proposes a \$43,349, or 16.05 percent revenue increase from \$270,040 to
3 \$313,389. The proposed revenue increase would produce an operating income of \$50,482 for
4 an 8.85 percent rate of return on a proposed fair value rate base ("FVRB") of \$570,570 which
5 is also the proposed original cost rate base ("OCRB"). The Company's proposed rates would
6 increase the typical residential 5/8 x 3/4-inch meter bill with a median usage of 5,500 gallons
7 from \$28.76 to \$34.48, for an increase of \$5.72 or 19.87 percent.

8
9 **Q. Please summarize Staff's recommended revenue.**

10 A. Staff is effectively recommending a \$3,894 or 1.44 percent revenue increase from \$270,040 to
11 \$273,934 as shown on Schedule BCA-10. Staff's recommended revenue would produce an
12 operating income of \$35,570 for a 7.70 percent rate of return on a Staff adjusted OCRB of
13 \$461,824 as shown on Schedule BCA-1. Staff recommends no change in rates as the
14 Company's test year bill count produces enough revenue to meet Staff's recommended
15 revenue requirement. Staff's recommended revenue will cover the Company's proposed
16 declining usage adjustment and a miscellaneous adjustment that reduced test year revenue.

17
18 **Q. How much did the Company's test year bill count revenue exceed the metered
19 revenue that the Company reported on Schedule C-1, page 1?**

20 A. The bill count produced metered revenue of \$266,176 which was \$3,894 more than the
21 \$262,282 in metered water revenue reported on Schedule C-1.

22
23 **Q. What test year did Abra utilize in this filing?**

24 A. Abra's rate filing is based on a test year ended December 31, 2012 ("test year").

25
26 **Q. Please summarize Staff's rate base and operating income adjustments for Abra.**

1 A. My testimony discusses the following adjustments:

2
3 **Rate Base Adjustments**

4 Water Treatment Plant – This adjustment decreases water treatment plant by \$79,900 to
5 reflect Staff's recommended balance in the prior rate case Decision No. 72287.

6
7 Accumulated Depreciation Reserve – This adjustment decreases accumulated depreciation
8 reserve by \$6,343, based upon the adjustments Staff made to Plant-in-Service and
9 recalculation of accumulated depreciation using the half-year convention.

10
11 Contributions In Aid of Construction ("CIAC") – This adjustment increases CIAC by \$6,795
12 to reflect Staff-recommended CIAC additions.

13
14 Amortization of CIAC – This adjustment increases accumulated amortization of CIAC by
15 \$5,760 to reflect the amortization of CIAC on the Staff-recommended CIAC additions, using
16 Staff's calculated composite depreciation rate.

17
18 Cash Working Capital Allowance – This adjustment decreases the cash working capital by
19 \$22,634 to reflect the removal of the cash working capital allowance due to the Company's
20 failure to conduct a lead-lag study.

21
22 **Operating Income Adjustments**

23 Outside Services – This adjustment decreases outside services expense by \$1,880 to reflect
24 Staff's removal of unsupported expense.

25

1 Water Testing – This adjustment decreases water testing expense by \$2,805 to reflect Staff's
2 recommended annual water testing costs.

3
4 Rents Expense – This adjustment decreases rents expense by \$779 to reflect Staff's removal
5 of unsupported expense.

6
7 Insurance, General Liability – This adjustment decreases general liability expense by \$447 to
8 reflect Staff's removal of unsupported expense.

9
10 Insurance, Health and Life – This adjustment decreases life insurance expense by \$2,988 to
11 reflect Staff's removal of disallowed expense.

12
13 Rate Case Expense – This adjustment decreases rate case expense by \$2,917 to provide for a
14 normalized level of rate case expense.

15
16 Bad Debt Expense – This adjustment decreases bad debt expense by \$8,299 to provide for a
17 normalized level of bad debt expense.

18
19 Depreciation Expense – This adjustment decreases depreciation expense by \$1,349 to reflect
20 Staff's calculation of depreciation expense based upon Staff's recommended plant balances.

21
22 Taxes Other Than Income – This adjustment decreases taxes other than income by \$554 to
23 reflect the removal of unpaid sales tax payments.

24
25 Property Tax Expense – This adjustment increases property tax expense by \$183 to reflect
26 Staff's calculation of Company's property tax expense.

1 Income Tax Expense – This adjustment increases income tax expense by \$6,109 to reflect the
2 income tax obligation on Staff's adjusted test year taxable income.

3
4 **RATE BASE**

5 *Fair Value Rate Base ("FVRB")*

6 **Q. Does Abra's application include schedules with elements of a Reconstruction Cost**
7 **New Rate Base?**

8 A. No. The Company's application does not request recognition of a Reconstruction Cost New
9 Rate Base. Accordingly, Staff has treated the Company's OCRB as its FVRB.

10
11 *Rate Base Summary*

12 **Q. Please summarize Staff's rate base recommendation.**

13 A. Staff recommends a \$461,824 OCRB, a \$108,746 reduction from the Company's proposed
14 \$570,570 rate base. Staff's recommendation results from the rate base adjustments described
15 below.

16
17 *Rate Base Adjustment No. 1 – Water Treatment Plant*

18 **Q. What did the Company propose with respect to the Water Treatment Plant Account**
19 **No. 320.1?**

20 A. The Company included in Water Treatment Plant Account No. 320.1 the cost of arsenic
21 treatment media of \$79,990, that was correctly transferred to the arsenic treatment media
22 Account No. 320.3 in the last rate case.

23
24 **Q. Is the Company's classification in this case appropriate?**

25 A. No. In the last rate case Staff appropriately reclassified the \$79,990 by removing it from the
26 Water Treatment Equipment Account No. 320 and adding it to Media for Arsenic treatment

1 Account No. 320.3. The Company claims that in the prior rate case, the \$79,990 was
2 recorded in a prepaid Account 151 and was reclassified by Staff from Account 301.1 to
3 Account No. 301.3. This is incorrect. The \$79,990 was correctly recorded in the Water
4 Treatment Equipment Account No. 320 and appropriately transferred to the Media for
5 Arsenic Treatment Account No. 320.3, in the last rate case.

6
7 **Q. What is Staff's recommendation?**

8 A. Staff recommends removal of the \$79,990 from the Water Treatment Equipment plant
9 account, as shown on Schedules BCA-3 and BCA-5.

10
11 *Rate Base Adjustment No. 2 – Accumulated Depreciation Reserve*

12 **Q. What does the Company propose with respect to the Accumulated Depreciation**
13 **Reserve account?**

14 A. The Company proposes a \$659,371 balance in the accumulated depreciation reserve account.

15
16 **Q. Please explain the adjustments made by Staff to the Company's Accumulated**
17 **Depreciation Reserve Account.**

18 A. Staff recommends a decrease to the Accumulated Depreciation Reserve Account of \$6,343,
19 from \$659,371 to \$653,028 as shown on Schedules BCA-3 and BCA-6. This adjustment
20 removes accumulated depreciation recorded on Water Treatment Plant amount (\$79,990),
21 which Staff removed from plant. The Adjustment also reflects application of the authorized
22 depreciation rates by account for the intervening years since the prior rate decision, and
23 accumulation of depreciation on arsenic media.

24

1 **Q. What is Staff's recommendation?**

2 A. Staff recommends decreasing the Accumulated Depreciation Reserve by \$6,343, as shown on
3 Schedules BCA-3 and BCA-6.

4
5 *Rate Base Adjustment No. 3 – CIAC*

6 **Q. What did the Company propose for CIAC?**

7 A. The Company proposed \$359,028 for CIAC.

8
9 **Q. Did Staff identify AIAC that through the terms of the related main line extension
10 agreements had converted to CIAC after ten years?**

11 A. No. However, in response to data request BCA 1.19, the Company provided supporting
12 documentation in CIAC additions totaling \$45,586, since the last rate case. Consequently,
13 Staff calculated a CIAC balance of \$365,823 (\$320,237+\$7,309+\$24,529+13,748).

14
15 **Q. What is Staff's recommendation for the CIAC account?**

16 A. Staff is recommending increasing the CIAC account by \$6,795, as shown on Schedules BCA-
17 3 and BCA-7.

18
19 *Rate Base Adjustment No. 4 – Amortization of CIAC*

20 **Q. What did the Company propose for the amortization of CIAC?**

21 A. The Company proposed \$257,496 for the amortization of CIAC.

22
23 **Q. Did Staff make any adjustments to the Amortization of CIAC account?**

24 A. Yes.

25

1 **Q. What was Staff's adjustment?**

2 A. Staff reflects the amortization of CIAC on the Staff recommended CIAC additions using the
3 test year composite depreciation rate. This adjustment increases accumulated amortization of
4 CIAC by \$5,760 to reflect the Staff recommended additions to CIAC.

5
6 **Q. What is Staff's recommendation?**

7 A. Staff recommends decreasing the amortization of CIAC by \$5,760, as shown on Schedules
8 BCA-3 and BCA-8.

9
10 *Rate Base Adjustment No. 5 – Cash Working Capital Allowance*

11 **Q. What are the components of working capital?**

12 A. The components of working capital as prescribed by the Arizona Administrative Code are
13 cash working capital, materials and supplies, and prepaid expenses.

14
15 **Q. Can total working capital be a negative amount that is deducted from rate base?**

16 A. Yes, this can happen when cash working capital (“CWC”) is negative and is larger than the
17 sum of the materials, supplies, and prepayments.

18
19 **Q. How did Abra calculate the cash working capital?**

20 A. Abra calculated cash working capital using the “formula method”, which equals one-eighth of
21 the operating expenses less depreciation, taxes, purchased water, and purchased power
22 expenses plus one twenty-fourth of purchased water and purchased power expenses. The
23 Company chose not to conduct a lead-lag study, which is required to support working capital
24 for class C utilities.

25

1 **Q. Has the Commission recently adopted Staff's recommendation to remove the working**
2 **capital from a Class C water company's rate base because it had not performed a lead-**
3 **lag study?**

4 A. Yes, the Commission in Decision No. 72429 dated June 24, 2011, (page 7, beginning at line
5 16), adopted Staff's recommendation to remove Southland Utilities Company's working
6 capital because it had not performed a lead-lag study.

7
8 **Q. What is Staff's recommendation?**

9 A. Staff recommends removing \$22,634 from working capital, as shown on Schedules BCA-3
10 and BCA-9.

11
12 **OPERATING INCOME**

13 *Revenues*

14 **Q. What are the results of Staff's analysis of test year revenues, expenses and operating**
15 **income?**

16 A. As shown on Schedules BCA-10 and BCA-11, Staff's analysis resulted in adjusted test year
17 revenues of \$270,040, expenses of \$237,516 and operating income of \$32,524.

18
19 *Operating Income Adjustment No. 1 – Outside Services Expense*

20 **Q. What is the Company proposing for outside services expense?**

21 A. The Company proposed \$107,983 for outside services expense. The costs were related to
22 management fees and consulting fees.

23
24 **Q. What adjustment did Staff make?**

25 A. Staff removed \$1,880 to reflect Staff's removal of unsupported expense.
26

1 **Q. What is Staff's recommendation?**

2 A. Staff recommends decreasing outside services expense by \$1,880, as shown on Schedules
3 BCA-10 and BCA-12.

4

5 *Operating Income Adjustment No. 2 – Water Testing*

6 **Q. What is the Company proposing for water testing expense?**

7 A. The Company is proposing \$6,123 for water testing expense.

8

9 **Q. What adjustment did Staff make?**

10 A. Staff adjusted annual water testing costs to reflect Staff's recommended \$3,318 water testing
11 expense as discussed in greater detail by Staff witness Jian Liu.

12

13 **Q. What is Staff's recommendation?**

14 A. Staff recommends decreasing water testing expense by \$2,805 as shown on Schedules BCA-
15 10 and BCA-13.

16

17 *Operating Income Adjustment No. 3 – Rent*

18 **Q. What is the Company proposing for rent expense?**

19 A. The Company is proposing \$3,333 for land lease, \$374 for equipment rental and \$6,600 for
20 office rent expense, for a total rent expense of \$10,307.

21

22 **Q. What Adjustment did Staff make?**

23 A. In response to data request BCA-3.2, the Company indicated that the most recent 2013 land
24 lease invoice of \$2,554 reflects a consumer price index increase of about 2.2, and is the most
25 appropriate annual cost. Consequently, Staff reduced the annual land lease expense by \$779.

26

1 **Q. What amount did Staff recommend for total rent expense?**

2 A. Staff recommends that land lease expense be decreased by \$779, from \$3,333 to \$2,554, while
3 leaving equipment rental at \$374 and office rent at \$6,600, for a total of \$9,528.

4
5 **Q. What is Staff's recommendation?**

6 A. Staff recommends decreasing the total rent expense by \$779, as shown on Schedules BCA-10
7 and BCA-14.

8
9 *Operating Income Adjustment No. 4 – Insurance, General Liability*

10 **Q. What is the Company proposing for general liability insurance?**

11 A. The Company is proposing \$3,926 for general liability insurance.

12
13 **Q. How did Staff calculate the expense?**

14 A. In response to data request BCA 2.10, the Company provided a copy of its liability insurance
15 policy totaling \$3,479.

16
17 **Q. What is Staff's recommendation?**

18 A. Staff recommends decreasing general liability insurance by \$447, as shown on Schedules
19 BCA-10 and BCA-15.

20
21 *Operating Income Adjustment No. 5 – Insurance, Health and Life*

22 **Q. What did the Company propose for health and life insurance?**

23 A. The Company proposed \$2,988 for health and life insurance.

24

1 **Q. How did Staff calculate the expense?**

2 A. In response to data request BCA 2.11, the Company provided a copy of term life insurance
3 policy with Mr. Larson as the insured and someone else other than Abra as the beneficiary of
4 the policy. Life insurance cost is an unallowable expense when someone other than the Utility
5 is the beneficiary of the policy.

6
7 **Q. What is Staff's recommendation?**

8 A. Staff recommends decreasing health and life insurance expense by \$2,988, as shown on
9 Schedules BCA-10 and BCA-16.

10

11 *Operating Income Adjustment No. 6 – Rate Case Expense*

12 **Q. What annual amount of rate case expense did the Company propose?**

13 A. The Company proposed \$11,667 for annual rate case expense.

14

15 **Q. What amount of total rate case expense has the Company incurred?**

16 A. The Company has incurred \$8,038 to date and expects to incur an additional \$26,962 by the
17 time a decision is issued in this proceeding.

18

19 **Q. Is total rate case expense of \$35,000 reasonable for the Company?**

20 A. Yes.

21

22 **Q. What number of years did Staff use to normalize rate case expense?**

23 A. Staff usually normalizes rate case expense over a 3 to 5 year period. Since there was
24 approximately 3 years between the Company's last rate case and the instant case, Staff
25 recommends four years, including a year for processing the rate case, or \$8,750 per year.

26

1 **Q. What is Staff's recommendation?**

2 A. Staff recommends decreasing rate case expense by \$2,917, as shown on Schedules BCA-10
3 and BCA-17.

4
5 *Operating Income Adjustment No. 7 – Bad Debt Expense*

6 **Q. What is the Company proposing for bad debt expense?**

7 A. The Company is proposing \$9,367 for bad debt expense.

8
9 **Q. How did Staff re-calculate the expense?**

10 A. In response to data request BCA-13, the Company stated that in 2012 it wrote-off old
11 receivables to clean-up the accounts receivable ledger to the amount in 2012. The Company
12 provided the list of old outstanding accounts receivable going back 9 years to 2003, which
13 totaled \$9,608. Staff calculated the average bad debt expense of \$1,068 (\$9,608/9).

14
15 **Q. What is Staff's recommendation?**

16 A. Staff recommends decreasing bad debt expense by \$8,299, as shown on Schedules BCA-10
17 and BCA-18.

18
19 *Operating Income Adjustment No. 8 – Depreciation Expense*

20 **Q. What is Abra proposing for depreciation expense?**

21 A. Abra is proposing depreciation expense of \$51,585.

22
23 **Q. What adjustment did Staff make to depreciation expense?**

24 A. Staff adjusted depreciation expense to reflect application of the Staff recommended
25 depreciation rates to the Staff recommended plant balances.

26

1 **Q. What is Staff's recommendation?**

2 A. Staff recommends decreasing depreciation expense by \$1,349, as shown on Schedules BCA-
3 10 and BCA-19.

4
5 *Operating Income Adjustment No. 9 – Taxes Other Than Income*

6 **Q. What is Abra proposing for taxes other than income?**

7 A. Abra is proposing taxes other than income of \$554.

8
9 **Q. What adjustment did Staff make to taxes other than income?**

10 A. This adjustment decreases taxes other than income by \$554 to reflect the removal of unpaid
11 sales tax payments.

12
13 **Q. What is Staff's recommendation?**

14 A. Staff recommends decreasing taxes other than income by \$554, as shown on Schedules BCA-
15 10 and BCA-20.

16
17 *Operating Income Adjustment No. 10 – Property Taxes*

18 **Q. What is Abra proposing for property taxes?**

19 A. Abra is proposing \$9,714 for property taxes.

20
21 **Q. Did Staff make any adjustment to the property taxes?**

22 A. Yes. Staff's adjustment reflects Staff's calculation of the property tax expense using the
23 modified Arizona Department of Revenue Methodology applied to Staff's recommended
24 revenues, as shown on Schedule BCA-22.

25

1 **Q. What is Staff's recommendation?**

2 A. Staff recommends decreasing property tax expense by \$183, as shown on Schedules BCA-10
3 and BCA-21.

4

5 *Operating Income Adjustment No. 11 – Income Taxes*

6 **Q. What is Abra proposing for test year income tax expense?**

7 A. Abra is proposing a negative \$930 for income taxes.

8

9 **Q. Did Staff make any adjustments to test year income tax expense?**

10 A. Yes. Staff's adjustment reflects Staff's calculation of the income tax expense based upon
11 Staff's adjusted test year taxable income.

12

13 **Q. What is Staff's recommendation?**

14 A. Staff recommends increasing income tax expense by \$6,109, as shown on Schedules BCA-10
15 and BCA-22.

16

17 **REVENUE REQUIREMENT**

18 **Q. Please provide an overview of staff's rate of return.**

19 A. Staff recommends adoption of 7.50 percent overall rate of return. While Staff witness Crystal
20 Brown's analysis suggests a rate of return range of 7.1 to 7.5 percent, Staff has selected the
21 top of the range of 7.5 percent as necessary for the Company cash flow. Although a slight
22 rate decrease is indicated in order to match Staff's rate of return, Staff recommends no
23 change in current revenue requirement, due to the Company's size and cash flow needs.
24 Staff's recommended annual revenue requirement is \$273,934.

25

1 **RATE DESIGN**

2 **Q. Please provide an overview of the Company's proposed rates.**

3 A. The following is a general description of the present rate structure. Details of the rate design
4 are presented in Schedule BCA-26. The monthly minimum charges vary by meter size and
5 include no gallons. The commodity rates are based on an inverted three tier rate design.
6 The Company proposed rates would increase the typical residential 5/8 x 3/4-inch meter bill
7 with a median usage of 5,500 gallons from \$28.76 to \$34.48, for an increase of \$5.72 or 19.87
8 percent, as shown on Schedule BCA-25.

9
10 **Q. Please summarize the current rate design.**

11 A. The monthly minimum charges vary by meter size and include no gallons. With the
12 exception of a school on a 2-inch meter, all customers are residential using 5/8 x 3/4-inch
13 meter with a monthly minimum charge of \$14.

14
15 **Q. Please summarize Staff's recommended rate design.**

16 A. Customer class is distinguished by meter size. The monthly minimum charges vary by meter
17 size and include no gallons. The commodity rates are based on an inverted three tier rate
18 design. Staff's recommends no change in rates. The typical residential 5/8 x 3/4-inch meter
19 bill with a median usage of 5,500 gallons would remain at \$28.76 as in the present rates as
20 shown on Schedule BCA-25.

21
22 **Q. Did the Company propose any changes to its Meter and Service Line Charges?**

23 A. No.

24
25 **Q. Does Staff agree?**

26 A. Yes.

1 **SERVICE CHARGES**

2 **Q. Did the Company propose any changes to the service charges?**

3 A. Yes.

4
5 **Q. Does Staff agree with the proposed Establishment (After Hours) Charge,**
6 **Reconnection (Delinquent) After Hours Charge and the Re-establishment After**
7 **Hours Charge?**

8 A. No. Staff agrees that an additional fee for service provided after normal business hours is
9 appropriate when such service is at the customer's request or for the customer's convenience.
10 Such a tariff compensates the utility for additional expenses incurred from providing after-
11 hours service.

12
13 Moreover, Staff concludes that it is appropriate to apply an after-hours service charge in
14 addition to the charge for any utility service provided after hours at the customer's request or
15 for the customer's convenience. Therefore, Staff recommends elimination of the Company's
16 current Establishment (After Hours) charge, Reconnection (Delinquent) After Hours charge
17 and the Re-Establishment After Hours charge. Instead of these charges, Staff recommends
18 the creation of a separate \$30 after-hours service charge. For example, under Staff's
19 proposal, a customer would be subject to a \$30 Establishment fee if it is done during normal
20 business hours, but would pay an additional \$30 after-hours fee if the customer requested that
21 the establishment be done after normal business hours.

22
23 **Q. Did the Company propose any changes to the service charges?**

24 A. Yes. The Company proposes to decrease the Non-Sufficient Funds ("NSF") Check charge
25 from \$25 to \$10 and Meter Re-Read charge from \$20 to \$10 and remove fire sprinkler charge.
26

1 **Q. Does Staff agree with the charges?**

2 A. Yes, except for the fire sprinkler charge.

3

4 **FIRE SPRINKLER CHARGES**

5 **Q. Did Staff recommend the addition of fire sprinkler charges?**

6 A. Yes. The Company does not propose tariff rates for fire sprinklers. In the event that a
7 customer requests service for a fire sprinkler, Staff recommends charges for fire sprinklers for
8 various meter sizes as shown on Schedule BCA-24.

9

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

11 A. Yes.

REVENUE REQUIREMENT

LINE NO.	DESCRIPTION		[A] COMPANY ORIGINAL COST	[B] STAFF ORIGINAL COST
1	Adjusted Rate Base		\$ 570,570	\$ 461,824
2	Adjusted Operating Income (Loss)		\$ 16,436	\$ 35,570
3	Current Rate of Return (L2 / L1)		2.88%	7.70%
4	Required Rate of Return		8.85%	7.50%
5	Required Operating Income (L4 * L1)	Note 1	\$ 50,495	\$ 34,637
6	Operating Income Deficiency (L5 - L2)	Note 2 Note 3	\$ 34,059	\$ 3,046
7	Gross Revenue Conversion Factor		1.2732	1.2784
8	Increase (Decrease) In Gross Revenue (L7 * L6)		\$ 43,349	\$ 3,894
9	Adjusted Test Year Revenue		\$ 270,040	\$ 270,040
10	Proposed Annual Revenue (L8 + L9)		\$ 313,389	\$ 273,934
11	Required Increase/(Decrease in Revenue) (%) (L8/L9)		16.05%	1.44%

References:

Column [A]: Company Schedules A-1
Column [B]: Staff Schedules BCA-2, BCA-3, & BCA-12

Note:1 Actual calculation results in \$50,495, but the Company requested \$50,482.

Note:2 Staff is recommending \$35,582, although the calculated amount is \$34,637.

Note:3 Although no increase in rates is indicated, Staff recommends this increase to cover test year revenue for declining usage adjustment and small miscellaneous adjustment.

GROSS REVENUE CONVERSION FACTOR

LINE NO.	DESCRIPTION	(A)	(B)	(C)	(D)
<u>Calculation of Gross Revenue Conversion Factor:</u>					
1	Revenue	100.0000%			
2	Uncollectible Factor (Line 11)	0.3142%			
3	Revenues (L1 - L2)	99.6858%			
4	Combined Federal and State Income Tax and Property Tax Rate (Line 23)	21.4600%			
5	Subtotal (L3 - L4)	78.2258%			
6	Revenue Conversion Factor (L1 / L5)	1.278350			
<u>Calculation of Uncollectible Factor:</u>					
7	Unity	100.0000%			
8	Combined Federal and State Tax Rate (Line 17)	20.5250%			
9	One Minus Combined Income Tax Rate (L7 - L8)	79.4750%			
10	Uncollectible Rate	0.3953%			
11	Uncollectible Factor (L9 * L10)	0.3142%			
<u>Calculation of Effective Tax Rate:</u>					
12	Operating Income Before Taxes (Arizona Taxable Income)	100.0000%			
13	Arizona State Income Tax Rate	6.5000%			
14	Federal Taxable Income (L12 - L13)	93.5000%			
15	Applicable Federal Income Tax Rate (Line 53)	15.0000%			
16	Effective Federal Income Tax Rate (L14 x L15)	14.0250%			
17	Combined Federal and State Income Tax Rate (L13 + L16)		20.5250%		
<u>Calculation of Effective Property Tax Factor</u>					
18	Unity	100.0000%			
19	Combined Federal and State Income Tax Rate (L17)	20.5250%			
20	One Minus Combined Income Tax Rate (L18-L19)	79.4750%			
21	Property Tax Factor	100.4807%			
22	Effective Property Tax Factor (L20*L21)		0.9350%		
23	Combined Federal and State Income Tax and Property Tax Rate (L17+L22)			21.4600%	
24	Required Operating Income	\$ 35,570			
25	Adjusted Test Year Operating Income (Loss)	32,524			
26	Required Increase in Operating Income (L24 - L25)		\$ 3,046		
27	Income Taxes on Recommended Revenue (Col. [C], L52)	\$ 5,966			
28	Income Taxes on Test Year Revenue (Col. [A], L52)	5,179			
29	Required Increase in Revenue to Provide for Income Taxes (L27 - L28)		787		
30	Recommended Revenue Requirement	\$ 273,934			
31	Uncollectible Rate (Line 10)	0.3953%			
32	Uncollectible Expense on Recommended Revenue (L30*L31)	\$ 1,083			
33	Adjusted Test Year Uncollectible Expense	\$ 1,068			
34	Required Increase in Revenue to Provide for Uncollectible Exp. (L32-L33)		15		
35	Property Tax with Recommended Revenue	\$ 9,576			
36	Property Tax on Test Year Revenue	9,531			
37	Increase in Property Tax Due to Increase in Revenue (L35-L36)		46		
38	Total Required Increase in Revenue (L26 + L29 + L34 + L37)		\$ 3,894		
<u>Calculation of Income Tax:</u>					
39	Revenue	\$ 270,040	\$ 3,894	\$ 273,934	
40	Operating Expenses Excluding Income Taxes	\$ 232,337	\$ 60	\$ 232,398	
41	Synchronized Interest (L56)	\$ 12,469		\$ 12,469	
42	Arizona Taxable Income (L39 - L40 - L41)	\$ 25,234		\$ 29,067	
43	Arizona State Income Tax Rate	6.5000%		6.5000%	
44	Arizona Income Tax (L42 x L43)	\$ 1,640		\$ 1,889	
45	Federal Taxable Income (L42 - L44)	\$ 23,594		\$ 27,178	
46	Federal Tax on First Income Bracket (\$1 - \$50,000) @ 15%	\$ 3,539		\$ 4,077	
47	Federal Tax on Second Income Bracket (\$51,001 - \$75,000) @ 25%	\$ -		\$ -	
48	Federal Tax on Third Income Bracket (\$75,001 - \$100,000) @ 34%	\$ -		\$ -	
49	Federal Tax on Fourth Income Bracket (\$100,001 - \$335,000) @ 39%	\$ -		\$ -	
50	Federal Tax on Fifth Income Bracket (\$335,001 - \$10,000,000) @ 34%	\$ -		\$ -	
51	Total Federal Income Tax	\$ 3,539		\$ 4,077	
52	Combined Federal and State Income Tax (L44 + L51)	\$ 5,179		\$ 5,966	
53	Applicable Federal Income Tax Rate [Col. [C], L51 - Col. [A], L51] / [Col. [C], L45 - Col. [A], L45]			15.0000%	
<u>Calculation of Interest Synchronization:</u>					
54	Rate Base	\$ 461,824			
55	Weighted Average Cost of Debt	2.7000%			
56	Synchronized Interest (L45 X L46)	\$ 12,469			
			\$ 232,337.00	232,383	

RATE BASE - ORIGINAL COST

LINE NO.		(A)	(B)	ADJ NO.	(C)
		COMPANY AS FILED	STAFF ADJUSTMENTS		STAFF AS ADJUSTED
1	Plant in Service	\$ 1,523,414	\$ (79,900)	1	\$ 1,443,514
2	Less: Accumulated Depreciation Reserve	659,371	(6,343)	2	653,028
3	Net Plant in Service	<u>\$ 864,043</u>	<u>\$ (73,557)</u>		<u>\$ 790,486</u>
	<i>LESS:</i>				
4	Advances in Aid of Construction (AIAC)	\$ 196,858	\$ -		\$ 196,858
5	Contributions in Aid of Construction (CIAC)	\$ 359,028	\$ 6,795	3	\$ 365,823
6	Less: Accumulated Amortization	257,496	(5,760)	4	251,736
7	Net CIAC	<u>\$ 101,532</u>	<u>12,555</u>		<u>\$ 114,087</u>
8	Total Advances and Contributions	\$ 298,390	\$ 12,555		\$ 310,945
9	Meter Deposits	\$ 14,650	\$ -		\$ 14,650
10	Customer Security Deposits	\$ 3,067	\$ -		\$ 3,067
11	Accumulated Deferred Income Taxes	\$ -	\$ -		\$ -
	<i>ADD: Working Capital</i>	\$ -	\$ -		\$ -
12	Cash Working Capital	\$ 22,634	\$ (22,634)	5	\$ -
13	Prepayments	\$ -	\$ -		\$ -
14	Total Rate Base	<u>\$ 570,570</u>	<u>\$ (108,746)</u>		<u>\$ 461,824</u>

References:

Column [A], Company Schedule B-1, Page 1
Column [B]: Schedule BCA-4
Column [C]: Column [A] + Column [B]

SUMMARY OF RATE BASE ADJUSTMENTS

LINE NO.	PLANT IN SERVICE	Acct. No. - f	[A] COMPANY AS FILED	[B] Treatment Plant Water		[C] Accumulated Depreciation		[D] CIAC		[E] Amortization of CIAC		[G] Working Capital Prepayments		STAFF AS ADJUSTED
				Ref. Sch BCA-5	Ref. Sch BCA-6	Ref. Sch BCA-7	Ref. Sch BCA-8	Ref. Sch BCA-10	Ref. Sch BCA-10	Ref. Sch BCA-10				
1			\$ 508											508
2		301	Organization Cost											787
3		302	Franchises											787
4		303	Land and Land Rights	15,044										15,044
5		304	Structures and Improvements	72,787										72,787
6		307	Wells and Springs	67,868										67,868
7		309	Supply Mains	-										-
8		310	Power Generation Equipment	-										-
9		311	Electric Pumping Equipment	77,467										77,467
10		320	Water Treatment Plant	-										-
11		320.1	Water Treatment Plant	-	(79,900)									-
12		320.2	Chemical Solution Feeders	4,654										4,654
13		320.3	Media for Arsenic Treatment	65,560										65,560
14		330	Distribution Reservoirs and Standpipes	-										-
15		330.1	Storage Tank	197,626										197,626
16		331	Transmission and Distribution Mains	659,578										659,578
17		333	Services	133,392										133,392
18		334	Meters and Meter Installations	40,035										40,035
19		335	Hydrants	-										-
20		336	Backflow Prevention Devices	-										-
21		339	Other Plant and Miscellaneous Equipment	9,890										9,890
22		340	Office Furniture and Equipment	278										278
23		340.1	Computers and Software	6,098										6,098
24		341	Transportation Equipment	20,280										20,280
25		343	Tools, Shop, and Garage Equipment	65										65
26		344	Laboratory Equipment	-										-
27		345	Power Operated Equipment	-										-
28		346	Communication Equipment	1,855										1,855
29		347	Miscellaneous Equipment	95										95
30		348	Other Tangible Equipment	4,545										4,545
31			Rounding	-										-
32			Total Plant in Service	\$ 1,523,414	\$ (79,900)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,443,514
33			Less: Accumulated Depreciation	\$ 659,371	\$ (6,343)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 653,028
34			Net Plant in Service	\$ 864,043	\$ (79,900)	\$ 6,343	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 790,486
36			LESS:											
37			Advances in Aid of Construction (AIAC)	\$ 196,858	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 196,858
38				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
39				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
40			Contributions in Aid of Construction (CIAC)	\$ 359,028	\$ -	\$ -	\$ 6,795	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 365,823
41			Less: Accumulated Amortization of CIAC	\$ 257,496	\$ -	\$ -	\$ -	\$ (5,760)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 251,736
42			Net CIAC	\$ 101,532	\$ -	\$ -	\$ 6,795	\$ 5,760	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 114,087
43				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
44			Total Advances and Net Contributions	\$ 298,390	\$ -	\$ -	\$ 6,795	\$ 5,760	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 310,945
45				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
46			Customer Meter Deposits	\$ 14,650	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 14,650
47			Customer Security Deposits	\$ 3,067	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,067
48			Accumulated Deferred Taxes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
49				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
50			ADD: Working Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
51			Cash Working Capital	\$ 22,634	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (22,634)	\$ -
52				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
53			Total Rate Base	\$ 570,570	\$ (79,900)	\$ 6,343	\$ (6,795)	\$ (5,760)	\$ -	\$ (22,634)	\$ -	\$ -	\$ -	\$ 461,824

RATE BASE ADJUSTMENT NO. 1 - WATER TREATMENT PLANT

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
	Water Treatment Plant	\$ 145,002	(79,900)	65,102

References:

- Column A: Company Schedule B-2
- Column B: Testimony, Brendan Aladi
- Column C: Column [A] + Column [B]

RATE BASE ADJUSTMENT NO. 2 - ACCUMULATED DEPRECIATION

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
1	Accumulated Depreciation	\$ 659,371	\$ (6,343)	\$ 653,028
2				
3				
4				
5	Computation:			
6				
7				
8	Water Treatment Plant	\$ 25,855	\$ (6,651)	\$ 19,204
9	Arsenic Media	\$ 30,802	\$ 308	\$ 31,110
10				
11		\$ 56,657	\$ (6,343)	\$ 50,314

References:

- Column A: Company Schedule C-1
- Column B: Testimony, Brendan Aladi
- Column C: Column [A] + Column [B]

RATE BASE ADJUSTMENT NO. 3 -CONTRIBUTIONS IN AID OF CONSTRUCTION ("CIAC")

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
1	Gross CIAC	\$ 359,028	\$ 6,795	\$ 365,823
2				
3				
4				
5	12/31/2009 Ending CIAC Balance			\$ 320,237
6	2010 Net CIAC Additions	2010		7,309
7	2011 Net CIAC Additions	2011		24,529
8	2012 Net CIAC Additions	2012		13,748
9				<u>\$ 365,823</u>

References:
Column A: Company's Schedule B-2
Column B: Testimony, Brendan Aladi
Column C: Column [A] + Column [B]

RATE BASE ADJUSTMENT NO. 4 - AMORTIZATION OF CONTRIBUTIONS IN AID OF CONSTRUCTION ("CIAC")

		[A]	[B]	[C]	
LINE NO.	DESCRIPTION	COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED	
1	Amortization of CIAC	\$ 257,496	(5,760)	\$ 251,736	-5496
2					
3					
4					
5	CALCULATION OF AMORTIZATION OF CIAC				
6			CIAC		Amortization of
7	Aiac Transferred to CIAC		Additions		CIAC
8	12/31/2009 Ending CIAC Amort. Balance				\$200,895
9	2010 Net CIAC Additions		\$ 7,309		\$16,102
10	2011 Net CIAC Additions		\$ 24,529		\$16,894
12	2012 Net CIAC Additions		\$ 13,748		\$17,845
13			<u>\$ 45,586</u>		<u>\$251,736</u>

* Half year convention

References:

Column A: Company Schedule B-2
Column B: Testimony, Brendan Aladi
Column C: Column [A] + Column [B]

Abra Water Company, Inc.
Docket No. W-01782A-14-0084
Test Year Ended December 31, 2012

Schedule BCA-9

RATE BASE ADJUSTMENT NO. 5 - WORKING CAPITAL

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		PER COMPANY	ADJUSTMENT	PER STAFF
	Cash Working Capital	\$ 22,634	\$ (22,634)	\$ -

References:

- Column A: Company Schedule B-2
- Column B: Testimony, Brendan Aladi
- Column C: Column [A] + Column [B]

OPERATING INCOME - TEST YEAR AND STAFF RECOMMENDED

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	Metered Water Sales	\$ 262,282	\$ -	\$ 262,282	\$ 3,894	\$ 266,176
2	Water Sales - Unmetered	-	-	-	-	-
3	Other Operating Revenues	7,758	-	7,758	-	7,758
4	Total Revenues	<u>\$ 270,040</u>	<u>\$ -</u>	<u>\$ 270,040</u>	<u>\$ 3,894</u>	<u>\$ 273,934</u>
5						
<u>EXPENSES:</u>						
7	Salaries and Wages	\$ -	\$ -	\$ -	\$ -	\$ -
8	Employee Pensions & Benefits	-	-	-	-	-
9	Purchased Power	17,285	-	17,285	-	17,285
10	Fuel for Power Production	-	-	-	-	-
11	Chemicals	191	-	191	-	191
12	Materials & Supplies	5,588	-	5,588	-	5,588
13	Office Supplies & Expense	10,243	-	10,243	-	10,243
14	Outside Services	107,983	(1,880) 1	106,103	-	106,103
18	Water Testing	6,123	(2,805) 2	3,318	-	3,318
19	Rents	10,307	(779) 3	9,528	-	9,528
20	Transportation Expenses	7,017	-	7,017	-	7,017
21	Insurance - General Liability	3,926	(447) 4	3,479	-	3,479
22	Insurance - Health and Life	2,988	(2,988) 5	-	-	-
23	Reg. Comm. Exp.	-	-	-	-	-
24	Reg. Comm. Exp. - Rate Case	11,667	(2,917) 6	8,750	-	8,750
25	Miscellaneous Expense	-	-	-	-	-
26	Bad Debt Expense	9,367	(8,299) 7	1,068	15	1,083
27	Depreciation Expense	51,585	(1,349) 8	50,236	-	50,236
28	Taxes Other Than Income	554	(554) 9	-	-	-
29	Property Taxes	9,714	(183) 10	9,531	46	9,577
30	Income Taxes	(930)	6,109 11	5,179	790	5,969
31	Not Used	-	-	-	-	-
32	To Reconcile To Company's Application	(4)	4	-	-	-
33	Total Operating Expenses	<u>\$ 253,604</u>	<u>\$ (16,088)</u>	<u>\$ 237,516</u>	<u>\$ 851</u>	<u>\$ 238,368</u>
34						
35	Operating Income (Loss)	<u>\$ 16,436</u>	<u>\$ 16,088</u>	<u>\$ 32,524</u>	<u>\$ 3,043</u>	<u>\$ 35,570</u>

References:

- Column (A): Company Schedule C-1
- Column (B): Schedule BCA-12
- Column (C): Column (A) + Column (B)
- Column (D): Schedules BCA-1 and BCA-2
- Column (E): Column (C) + Column (D)

SUMMARY OF OPERATING INCOME ADJUSTMENTS - TEST YEAR

LINE NO.	DESCRIPTION	[A] COMPANY AS FILED	[C] ADJ #1 Outside Services Expense Ref. Sch BCA-13	[F] ADJ #2 Contractual Services Water Testing Ref. Sch BCA-14	[D] ADJ #3 Rent Expense Ref. Sch BCA-15	[E] ADJ #4 General Liability Insurance Ref. Sch BCA-16	[F] ADJ #5 Health & Life Insurance Expense Ref. Sch BCA-17	[G] ADJ #6 Rate Case Expense Ref. Sch BCA-18	[H] Subtotal
1	REVENUES:								
2	Metered Water Sales	\$ 262,282							262,282
3	Water Sales - Unmetered								
4	Other Operating Revenues								
5	Total Revenues	\$ 270,040							270,040
6	OPERATING EXPENSES:								
7	Salaries and Wages								
8	Purchased Water								
9	Purchased Power	17,285							17,285
10	Fuel for Power Production								
11	Chemicals	191							191
12	Materials & Supplies	5,588							5,588
13	Office Supplies & Expense	10,243							10,243
14	Outside Services	107,983	(1,880)						106,103
18	Water Testing			(2,805)					3,318
19	Rents	10,307							9,528
20	Transportation Expenses	7,017		(779)					7,017
21	Insurance - General Liability	3,926			(447)				3,479
22	Insurance - Health and Life	2,988				(2,988)			
23	Reg. Comm. Exp.								
24	Reg. Comm. Exp. - Rate Case	11,667					(2,917)		8,750
25	Miscellaneous Expense								
26	Bad Debt Expense	9,367							9,367
27	Depreciation Expense	51,585							51,585
28	Taxes Other Than Income	554							554
29	Property Taxes	9,714							9,714
30	Income Taxes	(930)							(930)
31	Not Used								
32	To Reconcile To Company's Application	4							4
33	Total Operating Expenses	\$ 253,612	\$ (1,880)	\$ (2,805)	\$ (779)	\$ (447)	\$ (2,988)	\$ (2,917)	\$ 241,796
34									
35	Operating Income (Loss)	\$ 16,428	\$ 1,880	\$ 2,805	\$ 779	\$ 447	\$ 2,988	\$ 2,917	\$ 28,244

SUMMARY OF OPERATING INCOME ADJUSTMENT NO. 1 - TEST YEAR CONTINUED

LINE NO.	DESCRIPTION	[I] ADJ #7 Bad Debt Expense Ref: Sch BCA-20	[J] ADJ #8 Depreciation Expense Ref: Sch BCA-21	[K] ADJ #9 Other Than Income Ref: Sch BCA-22	[L] ADJ #10 Property Tax Expense Ref: Sch BCA-23	[M] ADJ #11 Income Tax Expense Ref: Sch BCA-24	[N] STAFF ADJUSTED
1	REVENUES:						
2	Metered Water Sales	\$ -	\$ -	\$ -	\$ -	\$ -	262,282
3	Water Sales - Unmetered	-	-	-	-	-	-
4	Other Operating Revenues	-	-	-	-	-	-
5	Total Revenues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 270,040
6	OPERATING EXPENSES:						
7	Salaries and Wages	-	-	-	-	-	-
8	Purchased Water	-	-	-	-	-	-
9	Purchased Power	-	-	-	-	-	17,285
10	Fuel for Power Production	-	-	-	-	-	-
11	Chemicals	-	-	-	-	-	191
12	Materials & Supplies	-	-	-	-	-	5,588
13	Office Supplies & Expense	-	-	-	-	-	10,243
14	Outside Services	-	-	-	-	-	106,103
15	Water Testing	-	-	-	-	-	3,318
16	Rents	-	-	-	-	-	9,528
17	Transportation Expenses	-	-	-	-	-	7,017
18	Insurance - General Liability	-	-	-	-	-	3,479
19	Insurance - Health and Life	-	-	-	-	-	-
20	Reg. Comm. Exp.	-	-	-	-	-	-
21	Reg. Comm. Exp. - Rate Case	-	-	-	-	-	-
22	Miscellaneous Expense	(8,299)	-	-	-	-	8,750
23	Bad Debt Expense	-	(1,349)	-	-	-	-
24	Depreciation Expense	-	-	-	-	-	1,068
25	Taxes Other Than Income	-	-	(554)	-	-	50,236
26	Property Taxes	-	-	-	(183)	-	9,531
27	Income Taxes	-	-	-	-	6,109	5,179
28	Not Used	-	-	-	-	-	-
29	To Reconcile To Company's Application	-	-	-	-	-	4
30	Total Operating Expenses	\$ (8,299)	\$ (1,349)	\$ (554)	\$ (183)	\$ 6,109	\$ 237,519
31	Operating Income (Loss)	\$ 8,299	\$ 1,349	\$ 554	\$ 183	\$ (6,109)	\$ 32,524

OPERATING INCOME ADJUSTMENT NO. 1 - OUTSIDE SERVICES EXPENSE

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
	Outside Services	\$ 107,983	\$ (1,880)	\$ 106,103

References:

- Column A: Company Schedule C-1
- Column B: Testimony, Brendan Aladi
- Column C: Column [A] + Column [B]

Abra Water Company, Inc.
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Test Year Ended December 31, 2012

Schedule BCA-13

OPERATING INCOME ADJUSTMENT NO. 2 - CONTRACT SRVCS., WATER TESTING EXPENSE

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
	Contractual Services - Water Testing	\$ 6,123	\$ (2,805)	\$ 3,318

References:

- Column A: Company Schedule C-1
- Column B: Testimony, Brendan Aladi
- Column C: Column [A] + Column [B]

OPERATING INCOME ADJUSTMENT NO. 3 - RENTS EXPENSE

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
	Rents Expense	\$ 10,307	\$ (779)	\$ 9,528

Rents Expense		
2012 Land Lease Expense	\$ 2,554	BCA 3.2
Equipment Rental Expense	\$ 374	BCA 2.8
Office Rent Expense	\$ 6,600	BCA 3.2
Staff's Adjusted	9,528	

References:

- Column A: Company Schedule C-1 & E-2
- Column B: Testimony, Brendan Aladi; Data Request BCA 3.2
- Column C: Column [A] + Column [B]

OPERATING INCOME ADJUSTMENT NO. 4 - GENERAL LIABILITY INSURANCE EXPENSE

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
	General Liability Insurance Expense	\$ 3,926	\$ (447)	\$ 3,479

References:

- Column A: Company Schedule C-1
- Column B: Testimony, Brendan Aladi; Date Request BCA-2.10
- Column C: Column [A] + Column [B]

OPERATING INCOME ADJUSTMENT NO. 5 - HEALTH AND LIFE INSURANCE EXPENSE

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
	Health and Life Insurance Expense	\$ 2,988	\$ (2,988)	\$ -

References:

- Column A: Company Schedule C-1
- Column B: Testimony, Brendan Aladi
- Column C: Column [A] + Column [B]

OPERATING INCOME ADJUSTMENT NO. 6 - RATE CASE EXPENSE

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
	Rate Case Expense	\$ 11,667	\$ (2,917)	\$ 8,750

	Per Company	Difference	Per Staff
	\$ 35,000		\$ 35,000
Divided by	3		4
	\$ 11,667		\$ 8,750

References:

- Column A: Company Schedule C-1
- Column B: Testimony, Brendan Aladi
- Column C: Column [A] + Column [B]

OPERATING INCOME ADJUSTMENT NO. 8 - DEPRECIATION EXPENSE ON TEST YEAR PLANT

LINE NO.	DESCRIPTION	(A) PLANT In SERVICE Per Staff	(B) NonDepreciable or Fully Depreciated PLANT	(C) DEPRECIABLE PLANT (Col A - Col B)	(D) DEPRECIATION RATE	(E) DEPRECIATION EXPENSE (Col C x Col D)
1	301 Organization Cost	\$ 508	\$ 508	-	0.00%	\$ -
2	302 Franchises	787	787	-	0.00%	-
3	303 Land and Land Rights	15,044	15,044	-	0.00%	-
4	304 Structures and Improvements	72,787	-	72,787	3.33%	2,424
5	306 Lake, River, and Other Intakes	-	-	-	2.50%	-
6	307 Wells and Springs	67,868	-	67,868	3.33%	2,260
7	309 Supply Mains	-	-	-	2.00%	-
8	310 Power Generation Equipment	-	-	-	5.00%	-
9	311 Pumping Equipment	77,467	18,083	59,384	12.50%	7,423
10	320.1 Water Treatment Plant	65,102	-	65,102	3.33%	2,168
11	320.2 Chemical Solution Feeders	4,654	1,794	2,860	20.00%	572
12	320.3 Media for Arsenic Treatment	65,560	-	65,560	33.33%	21,853
13	330 Distribution Reservoirs and Standpipes	-	-	-	2.22%	-
14	330.2 Storage Tanks	197,626	-	197,626	5.00%	9,881
15	331 Transmission and Distribution Mains	659,578	-	659,578	2.00%	13,192
16	333 Services	133,392	-	133,392	3.33%	4,442
17	334 Meters and Meter Installations	40,035	-	40,035	8.33%	3,335
18	335 Hydrants	-	-	-	2.00%	-
19	336 Backflow Prevention Devices	-	-	-	6.67%	-
20	339 Other Plant and Miscellaneous Equipment	9,890	-	9,890	6.67%	660
21	340 Office Furniture and Equipment	278	-	278	6.67%	19
22	340.1 Computers and Software	6,098	6,098	-	20.00%	-
23	341 Transportation Equipment	20,280	20,280	-	20.00%	-
24	343 Tools, Shop, and Garage Equipment	65	65	-	5.00%	-
25	344 Laboratory Equipment	-	-	-	10.00%	-
26	345 Power Operated Equipment	-	-	-	5.00%	-
27	346 Communication Equipment	1,855	-	1,855	10.00%	186
28	347 Miscellaneous Equipment	95	-	95	10.00%	10
29	348 Other Tangible Equipment	4,545	4,545	-	10.00%	-
30	Total Plant	\$ 1,443,514	\$ 67,204	\$ 1,376,310		\$ 68,423
31						
32						
33						
34	Composite Depreciation Rate (Depr Exp / Depreciable Plant):	4.97%				
35	CIAC: \$	365,823				
36	Amortization of CIAC (Line 31 x Line 32):	\$ 18,187				
37						
38	Depreciation Expense Before Amortization of CIAC:	\$ 68,423				
39	Less Amortization of CIAC:	\$ 18,187				
40	Test Year Depreciation Expense - Staff:	\$ 50,236				
41	Depreciation Expense - Company:	51,585				
42	Staff's Total Adjustment:	\$ (1,349)				

References:

- Column [A]: Schedule BCA-4
- Column [B]: From Column [A]
- Column [C]: Column [A] - Column [B]
- Column [D]: Engineering Staff Report
- Column [E]: Column [C] x Column [D]

Abra Water Company, Inc.
Docket No. W-01782A-14-0084
Test Year Ended December 31, 2012

Schedule BCA-20

OPERATING INCOME ADJUSTMENT NO. 9 - TAXES OTHER THAN INCOME

LINE NO.	DESCRIPTION	[A]	[B]	[C]
		COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
	Taxes Other Than Income	\$ 554	\$ (554)	\$ -

References:

- Column A: Company Schedule C-1
- Column B: Testimony, Brendan Aladi
- Column C: Column [A] + Column [B]

Abra Water Company, Inc.
Docket No. W-01782A-14-0084
Test Year Ended December 31, 2012

Schedule BCA-21

OPERATING INCOME ADJUSTMENT NO. 10 - PROPERTY TAX EXPENSE

LINE NO.	Property Tax Calculation	[A] STAFF AS ADJUSTED	[B] STAFF RECOMMENDED
1	Staff Adjusted Test Year Revenues	\$ 270,040	\$ 270,040
2	Weight Factor	2	2
3	Subtotal (Line 1 * Line 2)	540,080	\$ 540,080
4	Staff Recommended Revenue, Per Schedule BCA-1	270,040	\$ 273,934
5	Subtotal (Line 4 + Line 5)	810,120	814,014
6	Number of Years	3	3
7	Three Year Average (Line 5 / Line 6)	270,040	\$ 271,338
8	Department of Revenue Mutilplier	2	2
9	Revenue Base Value (Line 7 * Line 8)	540,080	\$ 542,676
10	Plus: 10% of CWIP -	-	-
11	Less: Net Book Value of Licensed Vehicles	-	\$ -
12	Full Cash Value (Line 9 + Line 10 - Line 11)	540,080	\$ 542,676
13	Assessment Ratio	19.0%	19.0%
14	Assessment Value (Line 12 * Line 13)	102,615	\$ 103,108
15	Composite Property Tax Rate	9.2877%	9.2877%
16	Staff Test Year Adjusted Property Tax (Line 14 * Line 15)	\$ 9,531	\$ -
17	Company Proposed Property Tax	9,714	
18	Staff Test Year Adjustment (Line 16-Line 17)	\$ (183)	
19	Property Tax - Staff Recommended Revenue (Line 14 * Line 15)		\$ 9,576
20	Staff Test Year Adjusted Property Tax Expense (Line 16)		\$ 9,531
21	Increase in Property Tax Expense Due to Increase in Revenue Requirement		\$ 46
22	Increase to Property Tax Expense		\$ 46
23	Increase in Revenue Requirement		3,894
24	Increase to Property Tax per Dollar Increase in Revenue (Line19/Line 20)		100%

OPERATING INCOME ADJUSTMENT NO. 11 - TEST YEAR INCOME TAXES

LINE NO.	DESCRIPTION	(A)	(B)
	<i>Calculation of Income Tax:</i>		
		<u>Test Year</u>	
1	Revenue	\$ 270,040	
2	Less: Operating Expenses - Excluding Income Taxes	\$ 232,340	
3	Less: Synchronized Interest (L17)	\$ 12,469	
4	Arizona Taxable Income (L1- L2 - L3)	<u>\$ 25,231</u>	
5	Arizona State Income Tax Rate	6.500%	
6	Arizona Income Tax (L4 x L5)		\$ 1,640
7	Federal Taxable Income (L4 - L6)	\$ 23,591	
8	Federal Tax on First Income Bracket (\$1 - \$50,000) @ 15%	\$ 3,539	
9	Federal Tax on Second Income Bracket (\$51,001 - \$75,000) @ 25%	\$ -	
10	Federal Tax on Third Income Bracket (\$75,001 - \$100,000) @ 34%	\$ -	
11	Federal Tax on Fourth Income Bracket (\$100,001 - \$335,000) @ 39%	\$ -	
12	Federal Tax on Fifth Income Bracket (\$335,001 - \$10,000,000) @ 34%	\$ -	
13	Total Federal Income Tax		<u>\$ 3,539</u>
14	Combined Federal and State Income Tax (L6 + L13)		<u>\$ 5,179</u>
	<i>Calculation of Interest Synchronization:</i>		
15	Rate Base	\$ 461,824	
16	Weighted Average Cost of Debt	<u>2.70%</u>	
17	Synchronized Interest (L16 x L17)	<u>\$ 12,469</u>	
18		Income Tax - Per Staff \$ 5,179	
19		Income Tax - Per Company \$ (930)	
20		Staff Adjustment \$ 6,109	

CASH FLOW ANALYSIS

Line No.		Staff Proposed
		Revenues and Expenses
1	INCOME STATEMENT	
2		
3	Operating Revenue	
4	Metered Water Revenue	\$ 266,176
5	Unmetered Water Revenues	\$ -
6	Other Water Revenues	\$ 7,758
7	Total Operating Rev:	\$ 273,934
8		
9	Operating Expenses	
10	601 Salaries and Wages	\$ -
11	610 Purchased Water	\$ -
12	615 Purchased Power	\$ 17,285
13	618 Chemicals	\$ 191
14	620 Materials and Supplies	\$ 5,588
15	620 Repairs and Maintenance	\$ -
15	621 Office Supplies & Expense	\$ 10,243
16	630 Contractual Services	\$ 106,103
17	635 Water Testing	\$ 3,318
18	641 Rents	\$ 9,528
19	650 Transportation Expenses	\$ 7,017
20	657 Insurance - General Liability	\$ 3,479
21	659 Insurance - Health and Life	\$ -
22	666 Regulatory Comm Exp - Rate Case	\$ 8,750
23	675 Miscellaneous Expense	\$ -
24	670 Bad Debt Expense	\$ 1,068
25	403 Depreciation Expense	\$ 50,236
26	408 Taxes Other Than Income	\$ -
27	408.11 Property Taxes	\$ 9,531
28	409 Income Tax	\$ 5,179
29	Not Used	\$ -
30	Total Operating Expense	\$ 237,515
31		
32	Operating Income	\$ 36,419
33		
34	Interest Income	\$ -
35	Interest Expense on Long-term debt	\$ 17,926
36	Total Other Interest Expense	\$ (17,926)
37		
38	Net Income	\$ 18,493
39		
40	Rate Base	\$ 465,297
41		
42	Rate of Return (Line 30 / Line 38)	7.83%
43		
44	Operating Margin (Line 30 / Line 7)	13.29%
45		
46	Principal Repayment	\$ 34,396
47		
48	AIAC and Customers deposit (Refunds)	\$ 10,360
49		
50	Cash Flow (L 32 + L25 - L44 -L45)	\$ 23,973
51		
52	TIER	
53	Before Tax: [L 28 + L 32] ÷ L 35	2.32
54	After Tax: L32 ÷ L 35	2.03
55	DSC	
56	Before Tax: [L 25 + L28+ L 32] ÷ [L 35 + L 46]	1.76
57	After Tax : [L 25 + L 32] ÷ [L 35 + L 46] (WIFA)	1.66

Monthly Usage Charge	Present	Company Proposed Rates	Staff Recommended Rates
Meter Size (All Classes):			
5/8 x 3/4 Inch	\$ 14.00	\$ 18.34	\$ 14.00
3/4 Inch	21.00	27.51	21.00
1 Inch	35.00	45.85	35.00
1 1/2 Inch	70.00	91.70	70.00
2 Inch	112.00	146.72	112.00
3 Inch	224.00	293.44	224.00
4 Inch	350.00	458.50	350.00
6 Inch	700.00	917.00	700.00
8 Inch	-	-	-
Commodity Charge - Per 1,000 Gallons			
5/8 x 3/4-inch Meter			
From 1 to 3,000 gallons	2.2500	2.5400	\$ 2.2520
From 3,001 to 10,000 gallons	3.8000	4.0400	3.8000
Over 10,000 gallons	6.0000	6.1400	6.0000
3/4-Inch Meter			
From 1 to 3,000 gallons	2.2500	2.5400	\$ 2.2520
From 3,001 to 10,000 gallons	3.8000	4.0400	3.8000
Over 10,000 gallons	6.0000	6.1400	6.0000
1" Meter			
From 1 to 15,000 gallons	3.3000	4.0400	3.8000
Over 15,000 gallons	3.9000	6.1400	6.0000
From 1 to 16,000 gallons	N/A	4.0400	N/A
Over 16,000 gallons	N/A	6.1400	N/A
1 1/2" Meter			
From 1 to 30,000 gallons	3.3000	4.0400	3.8000
Over 30,000 gallons	3.9000	6.1400	6.0000
2" Meter			
From 1 to 45,000 gallons	3.3000	4.0400	3.8000
Over 45,000 gallons	3.9000	6.1400	6.0000
3" Meter			
From 1 to 90,000 gallons	3.3000	4.0400	3.8000
Over 90,000 gallons	3.9000	6.1400	6.0000
4" Meter			
From 1 to 145,000 gallons	3.3000	4.0400	3.8000
Over 145,000 gallons	3.9000	6.1400	6.0000
6" Meter			
From 1 to 300,000 gallons	3.3000	4.0400	3.8000
Over 300,000 gallons	3.9000	6.1400	6.0000
Standpipe/ Coin Operated			
Per 1000 Gallons	3.9000	6.2500	6.0000
Service Line and Meter Installation Charges			
Establishment	\$ 30.00	\$ 30.00	\$ 30.00
Establishment (After Hours)	\$ 40.00	40.00	N/A
Reconnection (Delinquent)	\$ 50.00	\$ 50.00	\$ 50.00
Reconnection Delinquent (After Hours)	\$ 50.00	\$ 50.00	N/A
Meter Test (If Correct)	\$ 50.00	\$ 50.00	\$ 50.00
Deposit (Residential Meter)	(a)	(a)	(a)
Deposit (Non-Residential Meter)	(a)	N/A	(a)
Deposit Interest	6.00%	6.00%	6.00%
Re-establishment (within 12 months)	(b)	**	(b)
Re-establishment (After hours)	(b)	**	N/A
NSF Check	\$ 25.00	\$ 10.00	\$ 10.00
Deferred Payment (per month)	1.50%	1.50%	1.50%
Late Payment Fee (per month)	1.50%	1.50%	1.50%
Meter Re-read (if correct)	\$ 20.00	\$ 10.00	\$ 10.00
After Hour Service Charge (at customers request)	N/A	N/A	\$ 30.00
Fire Sprinkler (All Meter Sizes)	(c)	N/A	(c)

(a) Residential - two times the average bill. Non-residential - two and one-half times the average bill. R14-2-403(B)(7).

(b) Months of system times the minimum. Per Commission Rule (R14-2-403D)

(c) 2 percent of the monthly minimum for a comparable size meter connection but not less than \$10 per month.

In addition to the collection of regular rates, the utility will collect from its customers a proportionate share of any privilege, sales, use and franchise tax. R14-2-409(D)(5).

All advances and/or contributions are to include labor, materials, overheads and all applicable taxes. Cost to include labor, materials and parts, overheads and all applicable taxes.

Service Line and Meter Installation Charges	Company Proposed			Staff Recommended			
	Company Current Rates	Service Line Charge	Meter Charge	Total Charge	Service Line Charge	Meter Charge	Total Charge
5/8" x 3/4" Meter	\$ 425	380	95	\$ 475	380	95	\$ 475
3/4" Meter	\$ 450	335	165	\$ 500	335	165	\$ 500
1" Meter	\$ 500	350	200	\$ 550	350	200	\$ 550
1-1/2" Meter	\$ 700	470	430	\$ 900	470	430	\$ 900
2" Meter	\$ 1,125	590	735	\$ 1,325	590	735	\$ 1,325
3" Meter	\$ 1,505	660	1,045	\$ 1,705	660	1,045	\$ 1,705
4" Meter	\$ 2,340	910	1,630	\$ 2,540	910	1,630	\$ 2,540
6" Meter	\$ 4,445	1410	3,235	\$ 4,645	1,410	3,235	\$ 4,645

Typical Bill Analysis
Residential 5/8 Inch Meter

Schedule BCA-25

Company Proposed	Gallons	Present Rates	Proposed Rates	Dollar Increase	Percent Increase
Average Usage	5,717	\$ 33.80	\$ 39.84	\$ 6.03	17.85%
Median Usage	5,500	28.76	34.48	\$ 5.72	19.87%
Staff Recommended					
Average Usage	5,717	\$ 33.80	\$ 33.80	\$ -	0.00%
Median Usage	5,500	28.76	28.76	\$ -	0.00%

Present & Proposed Rates (Without Taxes)
Residential 5/8 Inch Meter

Gallons	Present	Company Proposed	%	Staff Recommended	%
	5/8 x 3/4"		5/8 x 3/4"		5/8 x 3/4"
	Minimum Charge \$ 14.00	Minimum Charge \$ 18.34		Minimum Charge \$ 14.00	
	1st Tier Rate 2.2500	1st Tier Rate 2.5400		1st Tier Rate 2.2500	
	1st Tier Breakover 3,000	1st Tier Breakover 3,000		1st Tier Breakover 3,000	
	2nd Tier Rate 3.8000	2nd Tier Rate 4.0400		2nd Tier Rate 3.8000	
	2nd Tier Breakover 10,000	2nd Tier Breakover 10,000		2nd Tier Breakover 10,000	
	3rd Tier Rate 6.0000	3rd Tier Rate 6.1400		3rd Tier Rate 6.0000	

Consumption	Rates	Rates	Increase	Rates	Increase
-	\$ 14.00	\$ 18.34	31.00%	\$ 14.00	0.00%
1,000	16.25	20.88	28.49%	16.25	0.00%
2,000	18.50	23.42	26.59%	18.50	0.00%
3,000	20.75	25.96	25.11%	20.75	0.00%
4,000	24.55	30.00	22.20%	24.55	0.00%
5,000	28.35	34.04	20.07%	28.35	0.00%
5,109	28.76	34.48	19.87%	28.76	0.00%
6,000	32.15	38.08	18.44%	32.15	0.00%
6,435	33.80	39.84	17.85%	33.80	0.00%
7,000	35.95	42.12	17.16%	35.95	0.00%
8,000	39.75	46.16	16.13%	39.75	0.00%
9,000	43.55	50.20	15.27%	43.55	0.00%
10,000	47.35	54.24	14.55%	47.35	0.00%
11,000	53.35	60.38	13.18%	53.35	0.00%
12,000	59.35	66.52	12.08%	59.35	0.00%
13,000	65.35	72.66	11.19%	65.35	0.00%
14,000	71.35	78.80	10.44%	71.35	0.00%
15,000	77.35	84.94	9.81%	77.35	0.00%
16,000	83.35	91.08	9.27%	83.35	0.00%
17,000	89.35	97.22	8.81%	89.35	0.00%
18,000	95.35	103.36	8.40%	95.35	0.00%
19,000	101.35	109.50	8.04%	101.35	0.00%
20,000	107.35	115.64	7.72%	107.35	0.00%
25,000	137.35	146.34	6.55%	137.35	0.00%
30,000	167.35	177.04	5.79%	167.35	0.00%
35,000	197.35	207.74	5.26%	197.35	0.00%
40,000	227.35	238.44	4.88%	227.35	0.00%
45,000	257.35	269.14	4.58%	257.35	0.00%
50,000	287.35	299.84	4.35%	287.35	0.00%
75,000	437.35	453.34	3.66%	437.35	0.00%
100,000	587.35	606.84	3.32%	587.35	0.00%

BEFORE THE ARIZONA CORPORATION COMMISSION

BOB STUMP

Chairman

GARY PIERCE

Commissioner

BRENDA BURNS

Commissioner

BOB BURNS

Commissioner

SUSAN BITTER SMITH

Commissioner

IN THE MATTER OF THE APPLICATION OF) DOCKET NO. W-01782A-14-0084
ABRA WATER COMPANY, INC., AN)
ARIZONA CORPORATION, FOR A)
DETERMINATION OF THE CURRENT FAIR)
VALUE OF ITS UTILITY PLANT AND)
PROPERTY AND FOR RATE INCREASES IN ITS)
RATES AND CHARGES FOR UTILITY SERVICE)
BASED THEREON)
_____)

DIRECT

TESTIMONY

OF

JIAN W. LIU

UTILITIES ENGINEER

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

AUGUST 15, 2014

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EXECUTIVE SUMMARY
ABRA WATER COMPANY, INC.
DOCKET NO. W-01782A-14-0084

CONCLUSIONS

- A. The Arizona Department of Environmental Quality (“ADEQ”) reported that the Abra Water Company (“Abra” or “Company”) drinking water system Public Water System (“PWS”) No. 13-001, is currently delivering water that meets water quality standards required by 40 C.F.R. 141 (National Primary Drinking Water Regulations) and Arizona Administrative Code, Title 18, Chapter 4. (ADEQ compliance status report dated May 19, 2014).
- B. The Company is not located in any Active Management Area (“AMA”) and is not subject to any Arizona Department of Water Resources (“ADWR”) AMA reporting and conservation requirements. ADWR reported that Abra is currently in compliance with departmental requirements governing water providers and/or community water systems. (ADWR compliance status report dated May 15, 2014).
- C. A check with the Arizona Corporation Commission (“ACC” or “Commission”) Utilities Division Compliance Section showed no delinquent compliance items for the Company. (ACC Compliance Section Email dated June 11, 2014).
- D. The Company has approved Curtailment Plan and Backflow Prevention Tariffs on file with the Commission.
- E. Staff concludes that the Abra has adequate production capacity and storage capacity to serve the existing customer base and reasonable growth.
- F. Abra reported 51,784,000 gallons pumped and 45,577,000 gallons sold, resulting in a water loss of approximately 11.99% in 2012.

RECOMMENDATIONS

- 1. Staff recommends its average annual cost of \$3,318 be adopted for the water testing expense in this proceeding.
- 2. In the prior rate case, the Company adopted Staff’s typical and customary water depreciation rates. These rates are presented in Table F-1 and it is recommended that the Company continue to use these depreciation rates by individual National Association of Regulatory Utility Commissioners category.
- 3. Abra does not have any Commission approved BMP tariffs. Staff recommends that the Company be required to file with Docket Control, as a compliance item in this docket, within 90 days of the effective date of this Decision, at least five BMPs in the form of tariffs that substantially conform to the templates created by Staff for the Commission’s review and

consideration. The templates created by Staff are available on the Commission's website at <http://www.azcc.gov/Divisions/Utilities/forms.asp>. The Company may request cost recovery of actual costs associated with the BMPs implemented in its next general rate application.

4. The Company has not requested any changes in its service line and meter installation charges that were approved in its last rate application. Staff recommends continued use of the Company's current meter and service line installation charges.
5. Staff recommends that Abra prepare a report containing a detailed analysis and plan to reduce water loss to 10 percent or less. If the Company believes it is not cost effective to reduce the water loss to less than 10 percent, it should submit a detailed cost benefit analysis to support its opinion. In no case shall the Company allow water loss to be greater than 15 percent. The water loss reduction report or the cost benefit analysis shall be docketed as a compliance item within 90 days of the effective date of the order issued in this proceeding.

1 **INTRODUCTION**

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

3 A. My name is Jian W. Liu. My place of employment is the Arizona Corporation Commission
4 (“Commission”), Utilities Division (“Staff”), 1200 West Washington Street, Phoenix, Arizona
5 85007. My job title is Water/Wastewater Engineer.

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

8 A. I have been employed by the Commission since October 2005.

9
10 **Q. Please list your duties and responsibilities.**

11 A. My main responsibilities are to inspect, investigate and evaluate water and wastewater
12 systems. This includes obtaining data, preparing reconstruction cost new and/or original cost
13 studies, investigative reports, interpreting rules and regulations, and to suggest corrective
14 action and provide technical recommendations on water and wastewater system deficiencies.
15 I also provide written and oral testimony in rate cases and other cases before the
16 Commission.

17
18 **Q. How many companies have you analyzed for the Utilities Division?**

19 A. I have analyzed approximately 46 companies covering various responsibilities for the Utilities
20 Division.

21
22 **Q. Have you previously testified before the Commission?**

23 A. Yes, I have testified before the Commission.

24

1 **Q. What is your educational background?**

2 A. I am a Ph.D. Candidate in Geotechnical Engineering from Arizona State University (“ASU”).
3 I have a Master of Science Degree in Natural Science from ASU and a Master of Science
4 Degree in Civil Engineering from Institute of Rock & Soil Mechanics (“IRSM”), Academy of
5 Sciences, China.

6
7 **Q. Briefly describe your pertinent work experience.**

8 A. From 1982 to 2000, I was employed by IRSM, SCS Engineers, and URS Corporation as a
9 Civil and Environmental Engineer. In 2000, I joined the Arizona Department of
10 Environmental Quality (“ADEQ”). My responsibilities with ADEQ included review and
11 approval of water distribution systems, sewer distribution systems, and on-site wastewater
12 treatment facilities. I remained with ADEQ until transferring to the Commission in October
13 2005.

14
15 **Q. Please state your professional membership, registrations, and licenses.**

16 A. I am a licensed professional civil engineer in the State of Arizona.

17
18 **PURPOSE OF TESTIMONY**

19 **Q. Were you assigned to provide Staff’s engineering analysis and recommendation for**
20 **Abra Water Company (“Abra”) in this proceeding?**

21 A. Yes. I reviewed Abra’s application and responses to data requests, and I inspected the water
22 system on June 12, 2014. This testimony and its attachment present Staff’s engineering
23 evaluation.

1 **ENGINEERING REPORT**

2 **Q. Please describe the attached Engineering Report, Exhibit JWL.**

3 A. Exhibit JWL presents the details and analyses of Staff's findings, and is attached to this direct
4 testimony. Exhibit JWL contains the following major topics: (1) a description of the water
5 system and the processes, (2) water use, (3) growth, (4) compliance with the rules of the
6 Arizona Department of Environmental Quality ("ADEQ"), Arizona Department of Water
7 Resources ("ADWR"), and the Commission, (5) depreciation rates, (6) curtailment plan tariff,
8 and (7) Service Line and Meter Installation Charges.

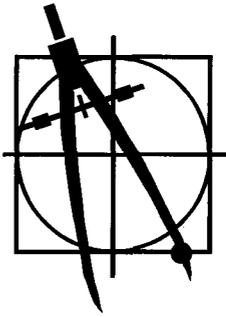
9

10 Staff's conclusions and recommendations from the engineering report are contained in the
11 "Executive Summary", above.

12

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

14 A. Yes, it does.



**Engineering Report For
Abra Water Company, Inc.
Docket No. W-01782A-14-0084 (Rates)**

July 30, 2014

A. INTRODUCTION AND LOCATION OF COMPANY

On March 11, 2014, Abra Water Company (“Abra” or “Company”) filed an application to increase its rates with the Arizona Corporation Commission (“ACC” or “Commission”) in Docket No. W-01782A-14-0084. Abra serves the Community of Paulden which is approximately 25 miles north of the Town of Prescott on State Highway 89 in Yavapai County. Figure A-1 describes the location of the Company within Yavapai County, and Figure A-2 describes the certificated area of Abra. Commission Utilities Division Staff (“Staff”) engineering review and analysis of the pending application is presented in this report.

B. DESCRIPTION OF WATER SYSTEM

The water system was field inspected on June 12, 2014, by Jian W Liu, Staff Utilities Engineer, in the accompaniment of Kevan Larson, representing Abra.

The operation of the water system consists of one well with a 500 gallon per minute (“GPM”) Arsenic Treatment Plant¹, two storage tanks, four booster pumps and a distribution system, serving approximately 625 customers during the test year of 2012. The detailed plant facility descriptions are as follows:

Well/Plant Data

ADWR ID No.	Pump HP	Pump GPM	Casing Depth(ft)	Casing Size(in)	Meter Size(in)	Year Drilled
55- 561786	40	305	380	12	4	1997

Note: Abra drilled a back-up well in 2012. This back-up well was not in service during Staff’s inspection on June 12, 2014.

1. The Company’s one well was producing water that had an arsenic level of 14 parts per billion. This 500 GPM Arsenic Treatment Plant became operational in May 2008 to address the high level of arsenic in the Company’s water.

Storage Tanks		Pressure Tanks		Booster Pumps	
Capacity (gallons)	Quantity	Capacity (gallons)	Quantity	Capacity (HP)	Quantity
250,000	1	350	4	20	2
24,000	1			1.5	2
Total	274,000				

Mains		Customer Meters		Fire Hydrants
Size (inches)	Length (feet)	Size (inches)	Quantity	Quantity
2	10,635			
4	22,005	5/8x3/4	628	2
6	59,775	3/4		
		1		
		1.5		
		2	1	
		3		
		4		
		Total	629 ²	

C. WATER USE

Water Sold

Based on the information provided by Abra, water use for the year 2012 is presented in Figure C-1. Customer consumption experienced a high monthly average water use of 314 gallons per day ("GPD") per connection and a low monthly average water use of 153 GPD per connection for an average annual use of 203 GPD per connection.

Non-Account Water

Non-account water should be 10 percent or less and never more than 15 percent. It is important to be able to reconcile the difference between water sold and the water produced by the source. A water balance will allow a water company to identify water and revenue losses due to leakage, theft, and flushing. Abra reported 51,784,000 gallons pumped and 45,577,000 gallons sold, resulting in a water loss of approximately 11.99% in 2012.

Staff recommends that Abra prepare a report containing a detailed analysis and plan to reduce water loss to 10 percent or less. If the Company believes it is not cost effective to reduce the water loss to less than 10 percent, it should submit a detailed cost benefit analysis to support its opinion. In no case shall the Company allow water loss to be greater than 15 percent. The water

² Exclude 44 meters on vacant houses

loss reduction report or the cost benefit analysis shall be docketed as a compliance item within 90 days of the effective date of the order issued in this proceeding.

D. GROWTH

In 2008 Abra had approximately 640 customers. It had approximately 625 customers during the test year of 2012. The customer base has leveled off and has even decreased slightly. The Company anticipates very little if any growth over the next 3-5 years.

Staff concludes that the Abra has adequate production capacity and storage capacity to serve the existing customer base and anticipated growth.

E. ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY COMPLIANCE ("ADEQ")

Compliance

ADEQ reported that the Abra drinking water system, Public Water System ("PWS") No. 13-001, is currently delivering water that meets water quality standards required by 40 C.F.R. 141 (National Primary Drinking Water Regulations) and Arizona Administrative Code, Title 18, Chapter 4. (ADEQ compliance status report dated May 19, 2014).

Water Testing Expense

The Company is subject to mandatory participation in the Monitoring Assistance Program ("MAP"). Participation in the MAP program is mandatory for water systems, which serve less than 10,000 persons (approximately 3,300 service connections).

The Company reported its water testing expense at \$6,122.59 during the 2012 test year, which included \$2,811 water testing expense for its new back-up well. Since this new back-up well was not in service in 2012 and during Staff's inspection on June 12, 2014, this expense should be removed from Company's water testing expense for the 2012 test year. Staff reviewed the Company's reported testing expense and made certain adjustments to determine an average annual cost of \$3,318 (rounded) as shown in Table E-1. Staff recommends annual water testing expense of \$3,318 be used for purposes of this application.

F. ARIZONA DEPARTMENT OF WATER RESOURCES ("ADWR") COMPLIANCE

The Company is not located in any ADWR Active Management Area ("AMA") and is not subject to any ADWR AMA reporting and conservation requirements. ADWR reported that Abra is currently in compliance with departmental requirements governing water providers and/or community water systems. (ADWR compliance status report dated May 15, 2014).

G. ACC COMPLIANCE

A check with the ACC Utilities Division Compliance Section showed no delinquent compliance items for the Company. (ACC Compliance Section Email dated June 11, 2014).

H. DEPRECIATION RATES

In the prior rate case, the Company adopted Staff's typical and customary water depreciation rates. These rates are presented in Table F-1 and it is recommended that the Company continue to use these depreciation rates by individual National Association of Regulatory Utility Commissioners category.

I. CURTAILMENT PLAN, BACKFLOW PREVENTION TARIFF AND BEST MANAGEMENT PRACTICE ("BMP") TARIFFS

The Company has approved Curtailment Plan and Backflow Prevention Tariffs on file with the Commission.

Abra does not have any Commission approved BMP tariffs. Staff recommends that the Company be required to file with Docket Control, as a compliance item in this docket, within 90 days of the effective date of this Decision, at least five BMPs in the form of tariffs that substantially conform to the templates created by Staff for the Commission's review and consideration. The templates created by Staff are available on the Commission's website at <http://www.azcc.gov/Divisions/Utilities/forms.asp>. The Company may request cost recovery of actual costs associated with the BMPs implemented in its next general rate application.

K. SERVICE LINE AND METER INSTALLATION CHARGES

The Company has not requested any changes in its service line and meter installation charges that were approved in its last rate application.³ Staff recommends continued use of the Company's current meter and service line installation charges.

Table K-1 shows the current charges.

2. The Company's rates were adjusted in Decision No. 72287 which was issued on May 4, 2011.

Abra Water Company, Inc.
Docket No. W-01782A-14-0084

Y A V A P A I C O U N T Y

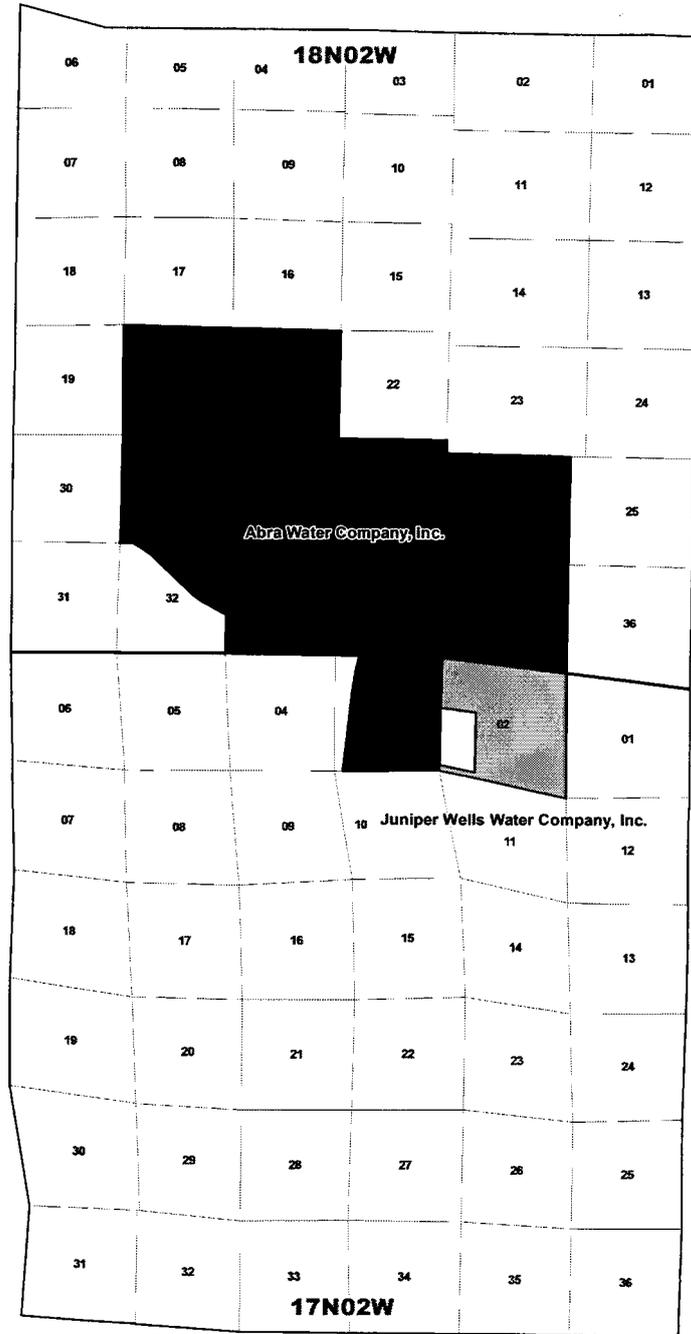


Figure A-2. Certificated Area

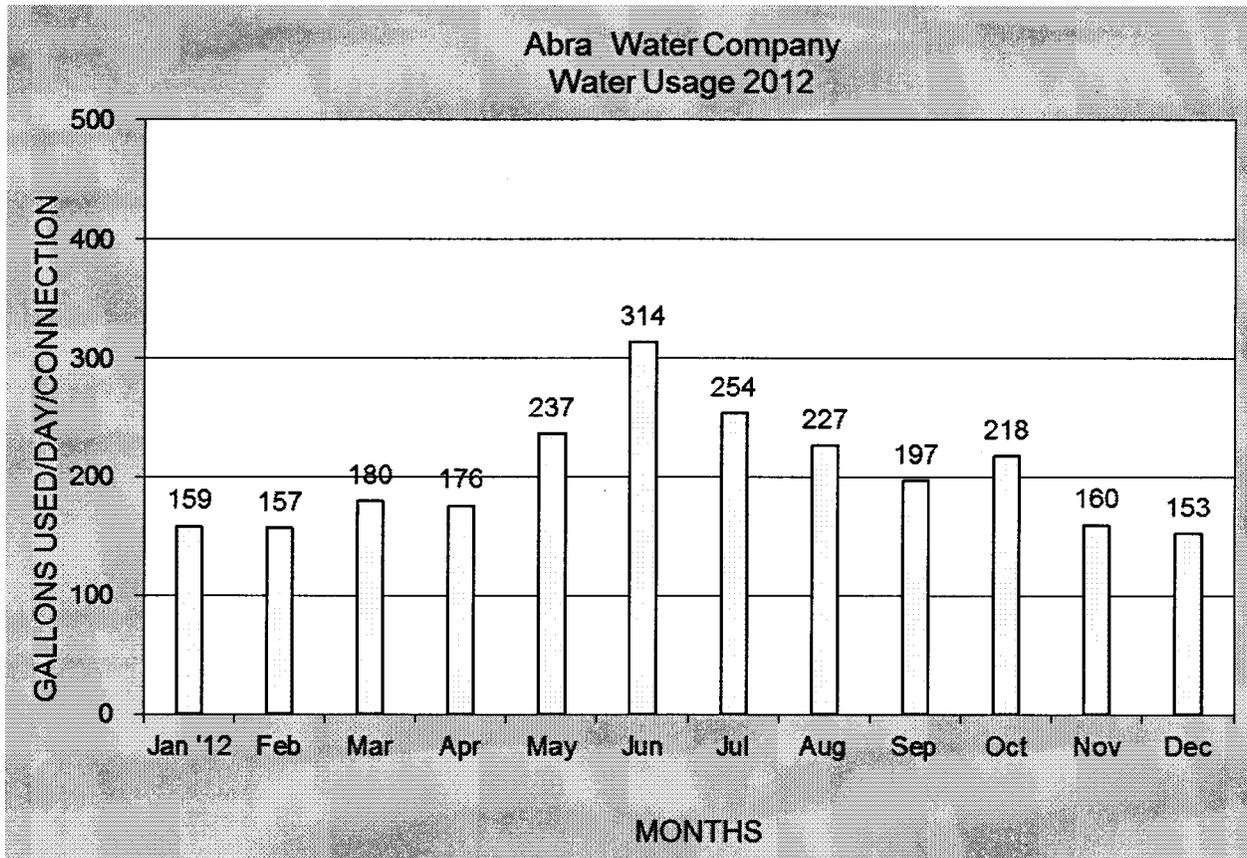


Figure C-1. Water Use

Table E-1. Water Testing Cost

Monitoring	Cost per test	No. of test	Annual Expense
Total coliform – monthly	\$20	12	\$240
MAP – IOCs, Radiochemical, Nitrate, Nitrite, Asbestos, SOCs, & VOCs	MAP	MAP	\$1,849 (rounded)
Arsenic	\$42	12	\$504
Lead & Copper – annually	\$34	10	\$340
TTHMs – annually	\$135	1	\$135
HAA5 - annually	\$250	1	\$250
Total			\$3,318 (rounded)

Note: ADEQ's MAP invoice for the 2012 Calendar Year was \$1,849.31

Table F-1. Depreciation Rates

NARUC Acct. No.	Depreciable Plant	Average Service Life (Years)	Annual Accrual Rate (%)
304	Structures & Improvements	30	3.33
305	Collecting & Impounding Reservoirs	40	2.50
306	Lake, River, Canal Intakes	40	2.50
307	Wells & Springs	30	3.33
308	Infiltration Galleries	15	6.67
309	Raw Water Supply Mains	50	2.00
310	Power Generation Equipment	20	5.00
311	Pumping Equipment	8	12.5
320	Water Treatment Equipment		
320.1	Water Treatment Plants	30	3.33
320.2	Solution Chemical Feeders	5	20.0
320.3	Media for Arsenic Treatment	3	33.3
330	Distribution Reservoirs & Standpipes		
330.1	Storage Tanks	45	2.22
330.2	Pressure Tanks	20	5.00
331	Transmission & Distribution Mains	50	2.00
333	Services	30	3.33
334	Meters	12	8.33
335	Hydrants	50	2.00
336	Backflow Prevention Devices	15	6.67
339	Other Plant & Misc Equipment	15	6.67
340	Office Furniture & Equipment	15	6.67
340.1	Computers & Software	5	20.00
341	Transportation Equipment	5	20.00
342	Stores Equipment	25	4.00
343	Tools, Shop & Garage Equipment	20	5.00
344	Laboratory Equipment	10	10.00
345	Power Operated Equipment	20	5.00
346	Communication Equipment	10	10.00
347	Miscellaneous Equipment	10	10.00
348	Other Tangible Plant	10	10.00

Table K-1. Current Service Line and Meter Installation Charges

Meter Sizes	Current Service Line Charges	Current * Meter Charges	Current Total Charges
5/8" x 3/4"	380	95	475
3/4"	335	165	500
1"	350	200	550
1-1/2"	470	430	900
2"	590	735	1,325
3"	660	1,045	1,705
4"	910	1,630	2,540
6"	1,410	3,235	4,645

*Note: Meter charge includes meter box or vault.

BEFORE THE ARIZONA CORPORATION COMMISSION

BOB STUMP
Chairman
GARY PIERCE
Commissioner
BRENDA BURNS
Commissioner
SUSAN BITTER SMITH
Commissioner
BOB BURNS
Commissioner

IN THE MATTER OF THE APPLICATION OF)
ABRA WATER COMPANY, AN ARIZONA)
CORPORATION, FOR A DETERMINATION)
OF THE CURRENT FAIR VALUE OF ITS)
UTILITY PLANT AND PROPERTY AND FOR)
INCREASES IN ITS RATES AND CHARGES)
FOR UTILITY SERVICE.)
_____)

DOCKET NO. W-01782A-14-0084

DIRECT
TESTIMONY
OF
CRYSTAL S. BROWN
EXECUTIVE CONSULTANT III
UTILITIES DIVISION
ARIZONA CORPORATION COMMISSION

AUGUST 15, 2014

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**EXECUTIVE SUMMARY
ABRA WATER COMPANY
DOCKET NO. W-01782A-14-0084**

The direct testimony of Staff witness Crystal S. Brown addresses the following issues:

Capital Structure – Staff recommends that the Commission adopt a capital structure for Abra Water Company (“Abra” or “Company”) for this proceeding consisting of 51.4 percent debt and 48.6 percent equity.

Staff recommends that the Commission adopt a 9.5 percent cost of equity for the Company. Staff’s estimated cost of equity for the Company is based on the 8.9 percent average of its discounted cash flow method (“DCF”) cost of equity methodology estimates for the sample companies of 8.5 percent for the constant-growth DCF model and 9.2 percent for the multi-stage DCF model. Staff’s recommended cost of equity includes an upward economic assessment adjustment of 60 basis points (0.6 percent).

Cost of Debt – Staff recommends that the Commission adopt a 5.2 percent cost of debt for the Company.

Overall Rate of Return – Staff recommends that the Commission adopt a 7.3 percent overall rate of return which is the midpoint between the 7.1 percent and 7.5 percent rates of return shown on Schedule CSB-1b.

Mr. Bourassa’s Testimony – The Commission should reject the Company’s proposed 11.00 percent return on equity (“ROE”) which relied solely on the Build-up method.

1 **I. INTRODUCTION**

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

3 A. My name is Crystal S. Brown. I am an Executive Consultant III employed by the Arizona
4 Corporation Commission ("Commission") in the Utilities Division ("Staff"). My business
5 address is 1200 West Washington Street, Phoenix, Arizona 85007.

6
7 **Q. Briefly describe your responsibilities as an Executive Consultant III.**

8 A. I am responsible for the examination of financial and statistical information included in utility
9 rate applications and other financial matters, including studies to estimate the cost of capital
10 component in rate filings used to determine the overall revenue requirement, and for
11 preparing written reports, testimonies and schedules to present Staff's recommendations to
12 the Commission on these matters.

13
14 **Q. Please describe your educational background and professional experience.**

15 A. I received a Bachelor of Science Degree in Business Administration from the University of
16 Arizona and a Bachelor of Science Degree in Accounting from Arizona State University.

17
18 Since joining the Commission in August 1996, I have participated in numerous rate cases and
19 other regulatory proceedings involving electric, gas, water, and wastewater utilities. I have
20 testified on matters involving regulatory accounting and auditing. Additionally, I have
21 attended utility-related seminars sponsored by the National Association of Regulatory Utility
22 Commissioners ("NARUC") on ratemaking and accounting designed to provide continuing
23 and updated education in these areas.

24

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

2 A. My testimony provides Staff's recommended capital structure, cost of equity, and overall rate
3 of return ("ROR") for establishing the revenue requirements for Abra Water Company
4 ("Abra" or "Company") in this application for a permanent rate increase.

5
6 **Q. Please provide a brief description of Abra.**

7 A. Abra is a Class "C" public service corporation engaged in providing water service in portions
8 of Yavapai County, Arizona. During the test year ending December 31, 2012, the Company
9 served approximately 655 water customers.

10

11 *Summary of Testimony and Recommendations*

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

13 A. Staff's cost of capital testimony is presented in ten sections. Section I is this introduction.
14 Section II discusses the concept of weighted average cost of capital ("WACC"). Section III
15 presents the concept of capital structure and presents Staff's recommended capital structure
16 for Abra in this proceeding. Section IV discusses the concepts of return on equity ("ROE")
17 and risk. Section V presents the methods employed by Staff to estimate Abra's ROE.
18 Section VI presents the findings of Staff's ROE analysis. Section VII presents Staff's final
19 cost of equity estimates for Abra. Section VIII presents Staff's ROR recommendation.
20 Section IX presents Staff's comments on the direct testimony of the Company's witness, Mr.
21 Thomas J. Bourassa. Finally, Section X presents Staff's conclusions.

22

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

24 A. Yes. I prepared nine schedules (CSB-1 to CSB-9) which support Staff's cost of capital
25 analysis.

26

1 **Q. What is Staff's recommended rate of return for Abra?**

2 A. Staff recommends a 7.3 percent overall ROR, as shown in Schedule CSB-1. Staff's ROR
3 recommendation is based on the following: (1) a capital structure composed of 51.4 percent
4 debt and 48.6 percent equity; (2) a cost of equity of 9.5 percent, calculated as the average of
5 the two cost of equity estimates for the sample companies derived from Staff's discounted
6 cash flow ("DCF") estimation methodologies (8.5 percent from Staff's constant growth DCF
7 model and 9.2 percent from Staff's multi-stage DCF model), plus the adoption of a 60 basis
8 point upward economic assessment adjustment; and (3) a cost of debt of 5.2 percent. Staff's
9 recommended 7.3 percent ROR is the midpoint between the 7.1 percent and 7.5 percent rates
10 of return shown on Schedule CSB-1b

11
12 Staff continues to develop and analyze the indicated cost of equity estimates derived from the
13 two capital asset pricing model ("CAPM") estimation methodologies historically considered
14 and relied upon by Staff. However, at the present time Staff is recommending that the
15 Commission de-emphasize the CAPM driven results due to the continuing divergence of the
16 CAPM-indicated cost of equity results relative to those derived by the DCF model.

17
18 **Q. Ms. Brown, briefly explain why the cost of equity estimates derived from the CAPM
19 have become problematic in today's economic environment.**

20 A. In an effort to recover from the economic recession of 2008, the United States Federal
21 Reserve ("the Fed") initiated a monetary policy intended to stimulate economic growth and
22 reduce unemployment by keeping the federal funds rate at a level between 0 to ¼ percent.¹
23 The federal funds rate is the central bank's key tool to spur the economy and a low rate is
24 thought to encourage spending by making it cheaper to borrow money. In addition, in an
25 effort to put downward pressure on longer-term interest rates, the Fed initiated a policy of

¹ The federal funds rate is the interest rate charged to banks by the Fed for overnight transfers of funds.

1 quantitative easing² wherein the U.S. central bank would purchase U.S. Treasury mortgage-
2 backed securities by reinvesting the principal payments from its holdings of agency debt and
3 agency mortgage-backed securities, and of rolling over maturing Treasury securities at
4 auction.³ As a consequence, the low interest rate environment engineered by the Fed has
5 compelled investors to seek out higher yields on investments wherever they may be found,
6 resulting in the equity markets having recently achieved new all-time highs,⁴ and forecasted
7 dividend yields continuing to remain at low levels.⁵ At present, these factors, in combination
8 with one another, have led to unusually low cost of equity estimates being obtained from the
9 CAPM model. Accordingly, in Staff's judgment the cost of equity estimates derived from the
10 CAPM should not be given their traditional weighting for purposes of setting rates until such
11 time that market conditions change.

12
13 *Abra's Proposed Overall Rate of Return*

14 **Q. Briefly summarize Abra's proposed capital structure, cost of debt, ROE and overall**
15 **ROR for this proceeding.**

16 **A.** Table 1 summarizes the Company's proposed capital structure, cost of debt, ROE and overall
17 ROR in this proceeding:
18

² Quantitative easing is an unconventional monetary policy in which a central bank purchases government securities or other securities from the market in order to lower interest rates and increase the money supply. Quantitative easing increases the money supply by flooding financial institutions with capital in an effort to promote increased lending and liquidity. Quantitative easing is considered when short-term interest rates are at or approaching zero, and does not involve the printing of new banknotes.

³ In a Press Release issued June 18, 2014, the Fed announced that beginning in July 2014 it would add to its holdings of agency mortgage-backed securities at a pace of \$15 billion per month, down from its prior level of \$20 billion per month, and add to its holdings of longer-term Treasury securities at a pace of \$20 billion per month, down from its prior level of \$25 billion per month. (<http://www.federalreserve.gov/newsevents/press/monetary/20140618a.htm>)

⁴ On June 20, 2014, the Dow Jones Industrial Average reached both an all-time intra-day high of 16,978.02 and an all-time closing high of 16,947.08. Similarly, the S&P 500 Index reached a new all-time closing high of 1,962.87 on June 20, 2014, and an all-time intra-day high of 1,968.17 on June 24, 2014 (Source: CNNMoney).

⁵ As reported in the *Value Line Investment Survey, Summary & Index*, the median estimated dividend yield (next 12 months) of all dividend paying stocks under its review is currently at 2.0 percent (*Value Line*, July 4, 2014 issue).

Table 1

	Weight	Cost	Weighted Cost
Long-term Debt	51.49%	6.82%	3.51%
Common Equity	48.51%	11.00%	5.34%
Cost of Capital/ROR			8.85%

Abra is proposing an overall rate of return of 8.85 percent.

II. THE WEIGHTED AVERAGE COST OF CAPITAL

Q. Briefly explain the cost of capital concept.

A. The cost of capital is the opportunity cost of choosing one investment over others with equivalent risk. In other words, the cost of capital is the return that stakeholders expect for investing their financial resources in a determined business venture over another business venture.

Q. What is the overall cost of capital?

A. The cost of capital to a company issuing a variety of securities (i.e., stock and indebtedness) is an average of the cost rates on all issued securities adjusted to reflect the relative amounts for each security in the company's entire capital structure. Thus, the overall cost of capital to a firm is its weighted average cost of capital ("WACC").

Q. How is the WACC calculated?

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

Equation 1.

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

1 In this equation, W_i is the weight given to the i^{th} security (the proportion of the i^{th} security
2 relative to the portfolio) and r_i is the expected return on the i^{th} security.

3
4 **Q. Can you provide an example demonstrating application of Equation 1?**

5 A. Yes. For this example, assume that an entity has a capital structure composed of 60 percent
6 debt and 40 percent equity. Also, assume that the embedded cost of debt is 6.0 percent and
7 the expected return on equity, i.e., the cost of equity, is 10.5 percent. Calculation of the
8 WACC is as follows:

9
$$\text{WACC} = (60\% * 6.0\%) + (40\% * 10.5\%)$$

10
$$\text{WACC} = 3.60\% + 4.20\%$$

11
$$\text{WACC} = 7.80\%$$

12
13 The weighted average cost of capital in this example is 7.80 percent. The entity in this
14 example would need to earn an overall rate of return of 7.80 percent to cover its cost of
15 capital.

16
17 **III. CAPITAL STRUCTURE**

18 *Background*

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

20 A. The capital structure of a firm is the relative proportions of each type of security:-short-term
21 debt, long-term debt (including capital leases), preferred stock and common stock that are
22 used to finance the firm's assets.

23

1 **Q. How is the capital structure expressed?**

2 A. The capital structure of a company is expressed as the percentage of each component of the
3 capital structure (capital leases, short-term debt, long-term debt, preferred stock and common
4 stock) relative to the entire capital structure.

5
6 As an example, the capital structure for an entity that is financed by \$20,000 of short-term
7 debt, \$85,000 of long-term debt (including capital leases), \$15,000 of preferred stock and
8 \$80,000 of common stock is shown in Table 2.

9
10 **Table 2**

Component			%
Short-Term Debt	\$20,000	(\$20,000/\$200,000)	10.0%
Long-Term Debt	\$85,000	(\$85,000/\$200,000)	42.5%
Preferred Stock	\$15,000	(\$15,000/\$200,000)	7.5%
Common Stock	\$80,000	(\$80,000/\$200,000)	40.0%
Total	\$200,000		100%

11
12 The capital structure in this example is composed of 10.0 percent short-term debt, 42.5
13 percent long-term debt, 7.5 percent preferred stock and 40.0 percent common stock.

14
15 *Abra's Capital Structure*

16 **Q. What capital structure does Abra propose for purposes of this proceeding?**

17 A. The Company proposes a capital structure composed of 51.49 percent debt and 48.51 percent
18 common equity. Abra's proposed capital structure reflects its actual consolidated capital
19 structure as of the December 31, 2012 test-year end, as shown in the Company's Schedule D-
20 1.

21

1 **Q. How does Abra's proposed capital structure compare to capital structures of publicly-**
2 **traded water utilities?**

3 A. Schedule CSB-4 shows the capital structures of seven publicly-traded water companies
4 ("sample water companies" or "sample water utilities") as of December 2013. The average
5 capital structure for the sample water utilities is comprised of approximately 47.9 percent debt
6 and 52.1 percent equity.

7

8 *Staff's Capital Structure*

9 **Q. What is Staff's recommended capital structure for Abra?**

10 A. Staff agrees with the Company's 51.5 percent debt and 48.5 percent equity.

11

12 **IV. RETURN ON EQUITY**

13 *Background*

14 **Q. Please define the term "cost of equity."**

15 A. The cost of equity is the rate of return that investors expect to earn on their investment in a
16 business entity given its risk. In other words, the cost of equity to the entity is the investors'
17 expected rate of return on other investments of similar risk. As investors have a wide
18 selection of stocks to choose from, they will choose stocks with similar risks but higher
19 returns. Therefore, the market determines the entity's cost of equity.

20

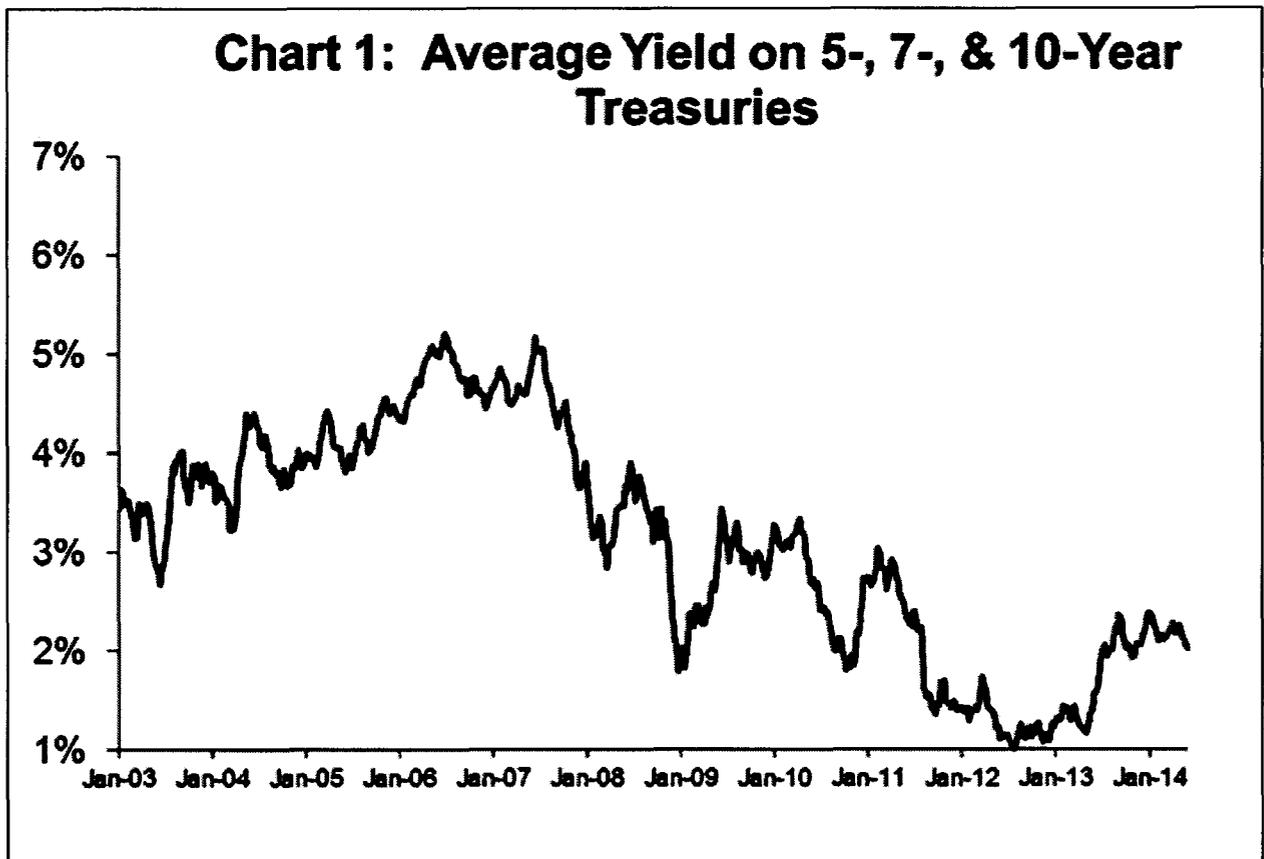
21 **Q. Is there a correlation between interest rates and the cost of equity?**

22 A. Yes, there is a positive correlation between interest rates and the cost of equity, as the two
23 tend to move in the same direction.

24

1 Q. What has been the general trend of interest rates in recent years?

2 A. A chronological chart of interest rates is a good tool to show interest rate history and identify
3 trends. Chart 1 graphs intermediate U.S. treasury rates from January 3, 2003, to May 30,
4 2014.



20 As shown in Chart 1, intermediate-term interest rates generally trended upward from 2003 to
21 mid-2007, trended downward until late-2012, and have trended upward since that time.

22
23 Q. What has been the general trend in interest rates longer term?

24 A. U.S. Treasury rates from January 1964- May 2014 are shown in Chart 2. The chart shows that
25 interest rates trended upward through the mid-1980s and have trended downward since that
26 time.

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Source: Federal Reserve

Q. Do these trends have relevance to the cost of equity?

A. Yes. As previously noted, interest rates and the cost of equity tend to move in the same direction; therefore, it can be concluded that the cost of equity has also declined over the past 30 years.

Q. Do actual returns represent the cost of equity?

A. No. The cost of equity represents investors' *expected* returns and not realized returns.

1 *Risk*

2 **Q. Please define risk in relation to cost of capital.**

3 A. Risk, as it relates to an investment, is the variability or uncertainty of the returns on a
4 particular security. Investors are risk averse and require a greater potential return to invest in
5 relatively greater risk opportunities, i.e., investors require compensation for taking on
6 additional risk. Risk is generally separated into two components. Those components are
7 market risk (systematic risk) and non-market risk (diversifiable risk or firm-specific risk).

8
9 **Q. What is market risk?**

10 A. Market risk, or systematic risk, is the risk associated with an investment that cannot be
11 reduced through diversification. Market risk stems from factors that affect all securities, such
12 as recessions, war, inflation and high interest rates. These factors affect the entire market.
13 However, market risk does not impact each security to the same degree.

14
15 **Q. Please define business risk.**

16 A. Business risk is the fluctuation of earnings inherent in a firm's operations and environment,
17 such as competition and adverse economic conditions, which may impair its ability to provide
18 returns on investment. Companies in the same or similar line of business tend to experience
19 the same fluctuations in business cycles.

20
21 **Q. Please define financial risk.**

22 A. Financial risk is the fluctuation of earnings inherent in the use of debt financing that may
23 impair a firm's ability to provide adequate returns; the higher the percentage of debt in a
24 company's capital structure, the greater its exposure to financial risk.

25

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

2 A. Yes.

3
4 **Q. Is a firm subject to any other risk?**

5 A. Yes. Firms are also subject to unsystematic or firm-specific risk. Examples of unsystematic
6 risk include losses caused by labor problems, nationalization of assets, loss of a big client or
7 weather conditions. However, investors can eliminate firm-specific risk by holding a diverse
8 portfolio; thus, it is not of concern to diversified investors.

9
10 **Q. How does Abra's financial risk exposure compare to that of Staff's sample group of
11 water companies?**

12 A. Staff's Schedule CSB-4 shows the capital structures of the seven sample water companies as
13 of December 2013, and Abra's capital structure as of the test year ending December 31, 2012.
14 As shown, the sample water utilities were capitalized with approximately 47.9 percent debt
15 and 52.1 percent equity, while Abra's capital structure consists of 51.5 percent debt and 48.5
16 percent equity. Thus, relative to Staff's sample companies, Abra's exposure to financial risk is
17 greater.

18
19 **Q. Is the cost of equity affected by firm-specific risk?**

20 A. No. Since firm-specific risk can be eliminated through diversification, it does not affect the
21 cost of equity.

22
23 **Q. Can investors expect additional returns for firm-specific risk?**

24 A. No. Investors who hold diversified portfolios can effectively eliminate firm-specific risk and,
25 consequently, do not require any additional return. Since investors who choose to be less

1 than fully-diversified must compete in the market with fully-diversified investors, the former
2 cannot expect to be compensated for unique risk.
3

4 **V. ESTIMATING THE COST OF EQUITY**

5 *Introduction*

6 **Q. Did Staff directly estimate the cost of equity for Abra?**

7 A. No. Since Abra is not a publicly-traded company, Staff is unable to directly estimate its cost
8 of equity due to the lack of firm-specific market data. Instead, Staff estimated the Company's
9 cost of equity indirectly, using a representative sample group of publicly-traded water utilities
10 as a proxy, taking the average of the sample group to reduce the sample error resulting from
11 random fluctuations in the market at the time the information is gathered.
12

13 **Q. What sample companies did Staff select as proxies for Abra?**

14 A. Staff's sample consists of the following seven publicly-traded water utilities: American States
15 Water, California Water, Aqua America, Connecticut Water Service, Middlesex Water, SJW
16 Corporation and York Water. Staff selected these companies because they are publicly-traded
17 and receive the majority of their earnings from regulated operations.
18

19 **Q. What models did Staff implement to estimate Abra's cost of equity?**

20 A. Staff used two variations of the DCF model, both of which are market-based, to estimate the
21 cost of equity for Abra: the constant-growth DCF model and the multi-stage DCF model.
22

23 **Q. Please explain why Staff chose the DCF model.**

24 A. Staff chose to use the DCF model because it is a widely-recognized market-based model and
25 has been used extensively to estimate the cost of equity. For the reasons noted earlier, Staff

1 does not incorporate estimates derived from the CAPM into its cost of equity analysis for
2 Abra. An explanation of the DCF model is provided below.

3
4 *Discounted Cash Flow Model Analysis*

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

7 A. The DCF method of stock valuation is based on the theory that the value of an investment is
8 equal to the sum of the future cash flows generated from the aforementioned investment
9 discounted to the present time. This method uses expected dividends, market price and
10 dividend growth rate to calculate the cost of capital. Professor Myron Gordon pioneered the
11 DCF method in the 1960s. The DCF method has become widely used to estimate the cost of
12 equity for public utilities due to its theoretical merit and its simplicity. Staff used the financial
13 information for the relevant seven sample companies in the DCF model and averaged the
14 results to determine an estimated cost of equity for the sample companies.

15
16 **Q. Does Staff use more than one version of the DCF?**

17 A. Yes. Staff uses two versions of the DCF model: the constant-growth DCF and the multi-
18 stage or non-constant growth DCF. The constant-growth DCF assumes that an entity's
19 dividends will grow indefinitely at the same rate. The multi-stage growth DCF model
20 assumes the dividend growth rate will change at some point in the future.

21
22 *The Constant-Growth DCF*

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

24 A. The constant-growth DCF formula used in Staff's analysis is:
25

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

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Equation 2 assumes that the entity has a constant earnings retention rate and that its earnings are expected to grow at a constant rate. According to Equation 2, a stock with a current market price of \$10 per share, an expected annual dividend of \$0.45 per share and an expected dividend growth rate of 3.0 percent per year has a cost of equity to the entity of 7.5 percent reflected by the sum of the dividend yield ($\$0.45 / \$10 = 4.5$ percent) and the 3.0 percent annual dividend growth rate.

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

A. Staff calculated the expected yield component of the DCF formula by dividing the expected annual dividend (D_1) by the spot stock price (P_0) after the close of market on July 2, 2014, as reported by *MSN Money* as shown on Schedule CSB-7.

Q. Why did Staff use the July 2, 2014, spot price rather than a historical average stock price to calculate the dividend yield component of the DCF formula?

A. The current, rather than historic, market price is used in order to be consistent with financial theory. In accordance with the Efficient Market Hypothesis, the current stock price is reflective of all available information on a stock, and as such reveals investors' expectations of future returns.

1 **Q. How did Staff estimate the dividend growth (g) component of the constant-growth**
2 **DCF model represented by Equation 2?**

3 A. The dividend growth component used by Staff is determined by the average of six different
4 estimation methods, as shown in Schedule CSB-8. Staff calculated historical and projected
5 growth estimates on dividend-per-share (“DPS”),⁶ earnings-per-share (“EPS”)⁷ and
6 sustainable growth bases.

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

10 A. Historic and projected EPS growth are used because dividends are related to earnings.
11 Dividend distributions may exceed earnings in the short run, but cannot continue indefinitely.
12 In the long term, dividend distributions are dependent on earnings.

13
14 **Q. How did Staff estimate historical DPS growth?**

15 A. Staff estimated historical DPS growth by calculating a compound annual DPS growth rate for
16 each of its sample companies over the 10-year period, 2003-2013. As shown in Schedule
17 CSB-5, the average historical DPS growth rate for the sample was 3.7 percent.

18
19 **Q. How did Staff estimate projected DPS growth?**

20 A. Staff calculated an average of the projected DPS growth rates for the sample water utilities
21 from *Value Line* through the period, 2016-2018. The average projected DPS growth rate is
22 5.9 percent, as shown in Schedule CSB-5.

23

⁶ Derived from information provided by *Value Line*.
⁷ Derived from information provided by *Value Line*.

1 **Q. How did Staff estimate historical EPS growth rate?**

2 A. Staff estimated historical EPS growth by calculating a compound annual EPS growth rate for
3 each of its sample companies over the 10-year period, 2003-2013. As shown in Schedule
4 CSB-5, the average historical EPS growth rate for the sample was 6.5 percent.

5
6 **Q. How did Staff estimate projected EPS growth?**

7 A. Staff calculated an average of the projected EPS growth rates for the sample water utilities
8 from *Value Line* through the period, 2016-2018. The average projected EPS growth rate is
9 6.0 percent, as shown in Schedule CSB-5.

10
11 **Q. How does Staff calculate its historical and projected sustainable growth rates?**

12 A. Historical and projected sustainable growth rates are calculated by adding their respective
13 retention growth rate terms (br) to their respective stock financing growth rate terms (vs), as
14 shown in Schedule CSB-6.

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

17 A. Retention growth is the growth in dividends due to the retention of earnings. The retention
18 growth concept is based on the theory that dividend growth cannot be achieved unless the
19 company retains and reinvests a portion of its earnings. The retention growth is used in
20 Staff's calculation of sustainable growth shown in Schedule CSB-6.

21
22 **Q. What is the formula for the retention growth rate?**

23 A. The retention growth rate is the product of the retention ratio and the book/accounting
24 return on equity. The retention growth rate formula is:

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Equation 3 :

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

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

Q. How did Staff calculate the average historical retention growth rate (br) for the sample water utilities?

A. Staff calculated the mean of the 10-year average historical retention rate for each sample company over the period, 2003-2013. As shown in Schedule CSB-6, the historical average retention (br) growth rate for the sample was 2.8 percent.

Q. How did Staff estimate its projected retention growth rate (br) for the sample water utilities?

A. Staff used the retention growth projections for the sample water utilities for the period, 2017-2019, from *Value Line*. As shown in Schedule CSB-6, the projected average retention growth rate for the sample companies is 4.2 percent.

Q. When can retention growth provide a reasonable estimate of future dividend growth?

A. The retention growth rate is a reasonable estimate of future dividend growth when the retention ratio is reasonably constant and the entity's market price to book value ("market-to-book ratio") is expected to be 1.0. The average retention ratio has been reasonably constant in recent years. However, the market-to-book ratio for the sample water utilities is 2.2, notably higher than 1.0, as shown in Schedule CSB-7.

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 an entity to earn
3 an accounting/book return on its equity that exceeds its cost of equity. The relationship
4 between required returns and expected cash flows is readily observed in the fixed securities
5 market. For example, assume an entity contemplating issuance of bonds with a face value of
6 \$10 million at either 6 percent or 8 percent and, thus, paying annual interest of \$600,000 or
7 \$800,000, respectively. Regardless of investors' required return on similar bonds, investors
8 will be willing to pay more for the bonds if issued at 8 percent than if the bonds are issued at
9 6 percent. For example, if the current interest rate required by investors is 6 percent, then
10 they would bid \$10 million for the 6 percent bonds and more than \$10 million for the 8
11 percent bonds. Similarly, if equity investors require a 9 percent return and expect an entity to
12 earn accounting/book returns of 13 percent, the market will bid up the price of the entity's
13 stock to provide the required return of 9 percent.

14
15 **Q. How has Staff generally recognized a market-to-book ratio exceeding 1.0 in its cost of**
16 **equity analyses in recent years?**

17 A. Staff has assumed that investors expect the market-to-book ratio to remain greater than 1.0.
18 Given that assumption, Staff has added a stock financing growth rate (vs) term to the
19 retention ratio (br) term to calculate its historical and projected sustainable growth rates.

20
21 **Q. Do the historical and projected sustainable growth rates Staff uses to develop its DCF**
22 **cost of equity in this case continue to include a stock financing growth rate term?**

23 A. Yes.
24

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

2 A. Stock financing growth is the increase in an entity's dividends attributable to the sale of stock
3 by that entity. Stock financing growth is a concept derived by Myron Gordon and discussed
4 in his book *The Cost of Capital to a Public Utility*.⁸ Stock financing growth is the product of the
5 fraction of the funds raised from the sale of stock that accrues to existing shareholders (v)
6 and the fraction resulting from dividing the funds raised from the sale of stock by the existing
7 common equity (s).

8
9 **Q. What is the mathematical formula for the stock financing growth rate?**

10 A. The mathematical formula for stock financing growth is:

Equation 4:

$$\text{Stock Financing Growth} = vs$$

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

11
12 **Q. How is the variable v presented above calculated?**

13 A. Variable v is calculated as follows:

14
Equation 5:

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

15
16 For example, assume that a share of stock has a \$30 book value and is selling for \$45. Then,
17 to find the value of v , the formula is applied:

⁸ Gordon, Myron J. *The Cost of Capital to a Public Utility*. MSU Public Utilities Studies, Michigan, 1974, pp. 31-35.

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In this example, v is equal to 0.33.

$$v = 1 - \left(\frac{30}{45} \right)$$

Q. How is the variable s presented above calculated?

A. Variable s is calculated as follows:

Equation 6:

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

For example, assume that an entity has \$150 in existing equity, and it sells \$30 of stock.

Then, to find the value of s , the formula is applied:

$$s = \left(\frac{30}{150} \right)$$

In this example, s is equal to 20.0 percent.

Q. What is the vs term when the market-to-book ratio is equal to 1.0?

A. A market-to-book ratio of 1.0 reflects that investors expect an entity to earn a book/accounting return on their equity investment equal to the cost of equity. When the market-to-book ratio is equal to 1.0, none of the funds raised from the sale of stock by the entity accrues to the benefit of existing shareholders, i.e., the term v is equal to zero (0.0). Consequently, the vs term is also equal to zero (0.0). When stock financing growth is zero, dividend growth depends solely on the br term.

1 **Q. What is the effect of the *vs* term when the market-to-book ratio is greater than 1.0?**

2 A. A market-to-book ratio greater than 1.0 reflects that investors expect an entity to earn a
3 book/accounting return on their equity investment greater than the cost of equity. Equation
4 5 shows that, when the market-to-book ratio is greater than 1.0, the *v* term is also greater than
5 zero. The excess by which new shares are issued and sold over book value per share of
6 outstanding stock is a contribution that accrues to existing stockholders in the form of a
7 higher book value. The resulting higher book value leads to higher expected earnings and
8 dividends. Continued growth from the *vs* term is dependent upon the continued issuance and
9 sale of additional shares at a price that exceeds book value per share.

10

11 **Q. What *vs* estimate did Staff calculate from its analysis of the sample water utilities?**

12 A. Staff estimated an average stock financing growth of 2.6 percent for the sample water utilities,
13 as shown in Schedule CSB-6.

14

15 **Q. What would occur if an entity had a market-to-book ratio greater than 1.0 as a result of
16 investors expecting earnings to exceed its cost of equity, and subsequently
17 experienced newly-authorized rates equal only to its cost of equity?**

18 A. Holding all other factors constant, one would expect market forces to move the company's
19 stock price lower, closer to a market-to-book ratio of 1.0, to reflect investor expectations of
20 reduced expected future cash flows.

21

22 **Q. If the average market-to-book ratio of Staff's sample water utilities were to fall to 1.0
23 due to authorized ROEs equaling their cost of equity, would inclusion of the *vs* term
24 be necessary to Staff's constant-growth DCF analysis?**

25 A. No. As discussed above, when the market-to-book ratio is equal to 1.0, none of the funds
26 raised from the sale of stock by the entity accrues to the benefit of existing shareholders

1 because the v term equals zero and, consequently, the vs term also equals zero. When the
2 market-to-book ratio equals 1.0, dividend growth depends solely on the br term. Staff's
3 inclusion of the vs term assumes that the market-to-book ratio continues to exceed 1.0 and
4 that the water utilities will continue to issue and sell stock at prices above book value with the
5 effect of benefitting existing shareholders.

6
7 **Q. What are Staff's historical and projected sustainable growth rates?**

8 A. Staff's estimated historical sustainable growth rate was 5.5 percent based on an analysis of
9 earnings retention for the sample water companies. Staff's projected sustainable growth rate
10 is 6.8 percent based on retention growth projected by *Value Line*. Schedule CSB-6 presents
11 Staff's estimates of the sustainable growth rate.

12
13 **Q. What is Staff's expected infinite annual growth rate in dividends?**

14 A. Staff's expected dividend growth rate (g) is 5.7 percent, which is the average of historical and
15 projected DPS, EPS, and sustainable growth estimates. Staff's calculation of the expected
16 infinite annual growth rate in dividends is shown in Schedule CSB-8.

17
18 **Q. What is Staff's constant-growth DCF estimate for the sample utilities?**

19 A. Staff's constant-growth DCF estimate is 8.5 percent, as shown in Schedule CSB-3.

20
21 *The Multi-Stage DCF*

22 **Q. Why did Staff implement the multi-stage DCF model to estimate Abra's cost of**
23 **equity?**

24 A. Staff generally uses the multi-stage DCF model to consider the assumption that dividends
25 may not grow at a constant rate. The multi-stage DCF uses two stages of growth; the first

1 stage (near-term) having a duration of four years, followed by a second stage (long-term) of
2 constant growth.

3
4 **Q. What is the mathematical formula for the multi-stage DCF?**

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

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

6
7 **Q. What steps did Staff take to implement its multi-stage DCF cost of equity model?**

8 A. First, Staff projected future dividends for each of the sample water utilities using near-term
9 and long-term growth rates. Second, Staff calculated the rate (cost of equity) which equates
10 the present value of the forecasted dividends to the current stock price for each of the sample
11 water utilities. Lastly, Staff calculated an overall sample average cost of equity estimate.

12
13 **Q. How did Staff calculate near-term (stage-1) growth?**

14 A. The stage-1 growth rate is based on *Value Line's* projected dividends for the next twelve
15 months, when available, and on the average dividend growth (g) rate of 5.7 percent, calculated
16 in Staff's constant DCF analysis for the remainder of the stage.

17

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

2 A. Staff calculated the stage-2 growth rate using the arithmetic mean rate of growth in Gross
3 Domestic Product ("GDP") from 1929 to 2013.⁹ Using the GDP growth rate assumes that
4 the water utility industry is expected to grow at the same rate as the overall economy.

5
6 **Q. What is the historical GDP growth rate that Staff used to estimate stage-2 growth?**

7 A. Staff used 6.5 percent to estimate the stage-2 growth rate.

8
9 **Q. What is Staff's multi-stage DCF estimate for the sample utilities?**

10 A. Staff's multi-stage DCF estimate is 9.2 percent, as shown in Schedule CSB-3.

11
12 **Q. What is Staff's overall DCF estimate for the sample utilities?**

13 A. Staff's overall DCF estimate is 8.9 percent. Staff calculated the overall DCF estimate by
14 averaging the constant growth DCF (8.5%) and multi-stage DCF (9.2%) estimates, as shown
15 in Schedule CSB-3.

16
17 **VI. SUMMARY OF STAFF'S COST OF EQUITY ANALYSIS**

18 **Q. What is the result of Staff's constant-growth DCF analysis to estimate the cost of**
19 **equity for the sample water utilities?**

20 A. Schedule CSB-3 shows the result of Staff's constant-growth DCF analysis. The result of
21 Staff's constant-growth DCF analysis is as follows:

22
23
$$k = (8.5\% + 9.2\%) \div 2$$

24
25
$$k = 8.9\%$$

⁹ www.bea.doc.gov.

1 Staff's constant-growth DCF estimate of the cost of equity for the sample water utilities is 8.5
2 percent.

3
4 **Q. What is the result of Staff's multi-stage DCF analysis to estimate of the cost of equity**
5 **for the sample utilities?**

6 A. Schedule CSB-9 shows the result of Staff's multi-stage DCF analysis. The result of Staff's
7 multi-stage DCF analysis is:

8
9

Company	Equity Cost Estimate (k)
American States Water	8.8%
California Water	9.2%
Aqua America	8.8%
Connecticut Water	9.4%
Middlesex Water	10.0%
SJW Corp	9.2%
York Water	<u>9.2%</u>
Average	9.2%

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20
21 Staff's multi-stage DCF estimate of the cost of equity for the sample water utilities is 9.2
22 percent.

23
24 **Q. What is Staff's overall DCF estimate of the cost of equity for the sample utilities?**

25 A. Staff's overall DCF estimate of the cost of equity for the sample utilities is 8.9 percent. Staff
26 calculated an overall DCF cost of equity estimate by averaging Staff's constant growth DCF
27 (8.5 percent) and Staff's multi-stage DCF (9.2 percent) estimates, as shown in Schedule CSB-
28 3.
29

1 **VII. FINAL COST OF EQUITY ESTIMATES FOR ABRA**

2 **Q. Please compare Abra's capital structure to that of Staff's seven sample companies.**

3 A. The average capital structure for the sample water utilities is composed of 47.9 percent debt
4 and 52.1 percent equity, as shown in Schedule CSB-4. Abra's capital structure is composed of
5 51.5 percent debt and 48.5 percent equity and is in close range to that of the sample water
6 companies. Therefore, since the Company's capital structure has approximately the same
7 leverage as that of the average sample water utility, Abra's stockholders bear approximately
8 the same financial risk than do equity shareholders of the sample utilities.

9
10 **Q. Did Staff consider factors other than the results of its technical models in its cost of
11 equity analysis?**

12 A. Yes. In consideration of the relatively uncertain status of the economy and the market that
13 currently exists, Staff is proposing an upward economic assessment adjustment to the cost of
14 equity. In this case, Staff recommends a 60 basis point (0.6 percent) upward economic
15 assessment adjustment, as shown in Schedule CSB-3.

16
17 **Q. What is Staff's recommended cost of equity for Abra?**

18 A. Staff recommends a cost of equity of 9.5 percent for Abra, based on cost of equity estimates
19 for the sample companies of 8.5 percent for the constant-growth DCF model and 9.2 percent
20 for the multi-stage DCF model. Staff recommends adoption of a 60 basis point upward
21 economic assessment adjustment, resulting in a 9.5 percent Staff-recommended cost of
22 equity, as shown in Schedule CSB-3.

23

1 **VIII. RATE OF RETURN RECOMMENDATION**

2 **Q. What overall rate of return did Staff determine for Abra?**

3 A. Staff determined a 7.3 percent ROR for the Company, as shown in Schedule CSB-1 and the
4 following table:

5
6

	Weight	Cost	Weighted Cost
Long-term Debt	51.4%	5.2%	2.7%
Common Equity	48.6%	9.5%	<u>4.6%</u>
Overall ROR			<u>7.3%</u>

7
8 Staff's recommended 7.3 percent ROR is the midpoint between the 7.1 percent and 7.5
9 percent rates of return shown on Schedule CSB-1b.

10
11 **IX. STAFF RESPONSE TO COMPANY'S COST OF CAPITAL WITNESS MR. THOMAS**

12 **J. BOURASSA**

13 **Q. Please summarize Mr. Bourassa's analyses and recommendations.**

14 A. Mr. Bourassa recommends an 11.0 percent cost of equity based on an estimate derived from
15 the Build-up risk premium model, using a proxy sample of six publicly-traded water
16 companies. He proposes a capital structure consisting of 51.49 percent debt and 48.51
17 percent equity.

18
19 **Q. Why does Staff question Mr. Bourassa's analysis and recommendations?**

20 A. Mr. Bourassa's estimates and results are not from market based analyses and the Commission
21 has traditionally relied upon market based results in determining the cost of capital in rate
22 cases. In this case Mr. Bourassa has completely ignored and/or abandoned the DCF and
23 CAPM methods and relies totally on the Build-up risk premium model. Therefore, Staff
24 recommends that Mr. Bourassa's proposals for cost of capital be rejected.

1 **X. CONCLUSION**

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

3 A. Staff recommends that the Commission adopt a 7.3 percent overall rate of return ("ROR")
4 for the Company based on a capital structure composed of 51.5 percent debt and 48.5
5 percent equity, Staff's 8.9 percent average DCF cost of equity estimate, and Staff's 60 basis
6 point (0.60 percent) upward economic assessment adjustment. Staff's recommended 7.3
7 percent ROR is the midpoint between the 7.1 percent and 7.5 percent rates of return shown
8 on Schedule CSB-1b.

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

11 A. Yes, it does.

Abra Water Company Cost of Capital Calculation
 Capital Structure
 And Weighted Average Cost of Capital
 Staff Recommended and Company Proposed

[A]	[B]	[C]	[D]
Description	Weight (%)	Cost	Weighted Cost
Staff Recommended Structure			
Debt	51.4%	5.2%	2.7%
Common Equity	48.6%	9.5%	4.6%
Weighted Average Cost of Capital			7.3%
Company Proposed Structure			
Debt	51.49%	6.82%	3.51%
Common Equity	48.51%	11.00%	5.34%
Weighted Average Cost of Capital			8.85%

[D] : [B] x [C]

Supporting Schedules: CSB-2, CSB-3 and CSB-4.

**Capital Structure
And Weighted Average Cost of Capital
Low and High Values of Range**

[A]	[B]	[C]	[D]		
Description	Weight (%)	Cost	Weighted Cost (Col A x Col B)		
1 Low Value of Range					
2 Debt	51.4%	5.2%	2.7%		
3 Common Equity (Using 8.5% Constant Growth DCF)	48.6%	9.1% Line 36, Col. E	4.4%		
4 Weighted Average Cost of Capital - Low Value of Range			7.1%		
5 High Value of Range					
6 Debt	51.4%	5.2%	2.7%		
7 Common Equity (Using 9.2% Multi-Stage DCF)	48.6%	9.8% Line 52, Col. E	4.8%		
8 Weighted Average Cost of Capital - High Value of Range			7.5%		
9					
10					
11					
12					
13 [D] : [B] x [C]					
14 Supporting Schedules: CSB-2, CSB-3 and CSB-4.					
15					
16					
17					
18					
19					
20	[A]	[B]	[C]	[D]	[E]
21					
22					
23		D ₁ /P ₀ ¹	+	g ²	=
24		2.8%	+	5.7%	=
25					k
26					8.5%
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Constant Growth DCF Estimate

Staff's Estimated Cost of Equity 8.5%

Economic Assessment Adjustment 0.6%

Sub-Total 9.1%

Financial Risk Adjustment 0.0%

Total 9.1%

Multi-Stage DCF Estimate

Staff's Estimated Cost of Equity 9.2%

Economic Assessment Adjustment 0.6%

Sub-Total 9.8%

Financial Risk Adjustment 0.0%

Total 9.8%

¹ MSN Money and Value Line
² Schedule CSB-8

¹ MSN Money and Value Line
² Schedule CSB-8

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Abra Water Company Cost of Capital Calculation
 Final Cost of Equity Estimates
 Sample Water Utilities

[A]	[B]	[C]	[D]	[E]
DCF Method				
Constant Growth DCF Estimate		$\frac{D_1}{P_0} \cdot 1$	+	g^2
Multi-Stage DCF Estimate		2.8%	+	5.7333%
Average DCF Estimate			=	k
			=	8.5%
			=	<u>9.2%</u>
				8.9%
			=	8.9%
				0.6%
				9.5%
				0.0%
				9.5%

Staff's Estimated Cost of Equity
 Economic Assessment Adjustment
 Sub-Total
 Financial Risk Adjustment
Total

1 MSN Money and Value Line

2 Schedule CSB-8

Abra Water Company Cost of Capital Calculation
Average Capital Structure of Sample Water Utilities

[A]	[B]	[C]	[D]
<u>Company</u>	<u>Debt</u>	<u>Common Equity</u>	<u>Total</u>
American States Water	40.8%	59.2%	100.0%
California Water	47.2%	52.8%	100.0%
Aqua America	52.0%	48.0%	100.0%
Connecticut Water	50.8%	49.2%	100.0%
Middlesex Water	45.9%	54.1%	100.0%
SJW Corp	54.7%	45.3%	100.0%
York Water	<u>44.2%</u>	<u>55.8%</u>	<u>100.0%</u>
Average Sample Water Utilities	47.9%	52.1%	100.0%
Abra Water Co. - Actual Capital Structure	51.4%	48.6%	100.0%

Source:

Sample Water Companies from Value Line

Abra Water Company Cost of Capital Calculation
Growth in Earnings and Dividends
Sample Water Utilities

[A]	[B]	[C]	[D]	[E]
<u>Company</u>	Dividends Per Share 2003 to 2013 <u>DPS¹</u>	Dividends Per Share Projected <u>DPS¹</u>	Earnings Per Share 2003 to 2013 <u>EPS¹</u>	Earnings Per Share Projected <u>EPS¹</u>
American States Water	5.6%	7.7%	15.2%	3.9%
California Water	1.3%	8.0%	4.9%	8.9%
Aqua America	7.6%	9.0%	9.7%	6.0%
Connecticut Water	1.7%	3.4%	3.7%	3.3%
Middlesex Water	1.5%	2.0%	5.4%	3.1%
SJW Corp	4.1%	5.2%	2.1%	8.7%
York Water	4.1%	6.0%	4.8%	8.0%
 Average Sample Water Utilities	 3.7%	 5.9%	 6.5%	 6.0%

¹ Value Line

Abra Water Company Cost of Capital Calculation
Sustainable Growth
Sample Water Utilities

[A]	[B]	[C]	[D]	[E]	[F]
Company	Retention Growth 2003 to 2013 <u>br</u>	Retention Growth Projected <u>br</u>	Stock Financing Growth <u>vs</u>	Sustainable Growth 2003 to 2013 <u>br + vs</u>	Sustainable Growth Projected <u>br + vs</u>
American States Water	4.1%	5.6%	1.7%	5.8%	7.3%
California Water	2.7%	3.8%	3.1%	5.7%	6.9%
Aqua America	4.2%	6.0%	1.8%	6.0%	7.8%
Connecticut Water	2.1%	3.5%	3.5%	5.6%	7.0%
Middlesex Water	1.3%	2.8%	3.0%	4.3%	5.8%
SJW Corp	3.2%	3.6%	0.8%	4.1%	4.5%
York Water	<u>2.2%</u>	<u>4.0%</u>	<u>4.6%</u>	<u>6.7%</u>	<u>8.6%</u>
 Average Sample Water Utilities	 2.8%	 4.2%	 2.6%	 5.5%	 6.8%

[B]: Value Line

[C]: Value Line

[D]: Value Line, MSN Money, and Form 10-Ks filed with the Securities and Exchange Commission (<http://www.sec.gov>)

[E]: [B]+[D]

[F]: [C]+[D]

Abra Water Company Cost of Capital Calculation
 Selected Financial Data of Sample Water Utilities

[A]	[B]	[C]	[D]	[E]	[F]	[G]
<u>Company</u>	<u>Symbol</u>	<u>Spot Price</u> <u>7/2/2014</u>	<u>Book Value</u>	<u>Mkt To</u> <u>Book</u>	<u>Value Line</u> <u>Beta</u> <u>β</u>	<u>Raw</u> <u>Beta</u> <u>β_{raw}</u>
American States Water	AWR	32.92	12.63	2.6	0.70	0.52
California Water	CWT	23.82	12.20	2.0	0.65	0.45
Aqua America	WTR	25.5	8.50	3.0	0.65	0.45
Connecticut Water	CTWS	33.81	16.31	2.1	0.75	0.60
Middlesex Water	MSEX	21.41	12.03	1.8	0.70	0.52
SJW Corp	SJW	27.31	15.56	1.8	0.85	0.75
York Water	YORW	20.81	8.23	2.5	0.75	0.60
Average				2.2	0.72	0.55

[C]: Msn Money

[D]: Value Line

0.7167

[E]: [C] / [D]

[F]: Value Line

[G]: $(-0.35 + [F]) / 0.67$

Abra Water Company Cost of Capital Calculation
Calculation of Expected Infinite Annual Growth in Dividends
Sample Water Utilities

[A]	[B]
<u>Description</u>	<u>g</u>
DPS Growth - Historical ¹	3.7%
DPS Growth - Projected ¹	5.9%
EPS Growth - Historical ¹	6.5%
EPS Growth - Projected ¹	6.0%
Sustainable Growth - Historical ²	5.5%
<u>Sustainable Growth - Projected²</u>	<u>6.8%</u>
 Average	 5.7%

¹ Schedule CSB-5

² Schedule CSB-6

Abra Water Company Cost of Capital Calculation
Multi-Stage DCF Estimates
Sample Water Utilities

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
<u>Company</u>	Current Mkt. Price (P_0) ¹ 7/2/2014	Projected Dividends ² (Stage 1 growth) (D_t)				Stage 2 growth ³ (g_n)	Equity Cost Estimate (K) ⁴
		d_1	d_2	d_3	d_4		
American States Water	32.9	0.80	0.84	0.89	0.94	6.5%	8.8%
California Water	23.8	0.67	0.71	0.75	0.79	6.5%	9.2%
Aqua America	25.5	0.60	0.64	0.68	0.71	6.5%	8.8%
Connecticut Water	33.8	1.00	1.06	1.12	1.18	6.5%	9.4%
Middlesex Water	21.4	0.78	0.82	0.87	0.92	6.5%	10.0%
SJW Corp	27.3	0.77	0.81	0.86	0.91	6.5%	9.2%
York Water	20.8	0.58	0.61	0.65	0.69	6.5%	9.2%

Average **9.2%**

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

- 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 [B] see Schedule JAC-7

2 Derived from Value Line Information

3 Average annual growth in GDP 1929 - 2012 in current dollars.

4 Internal Rate of Return of Projected Dividends

Abra Water Company Cost of Capital Calculation				
Capitalization				
(Per Data Request BCA 1.3)				
	<u>Interest Rate</u>	<u>Annual Interest</u>	<u>Amount outstanding</u> <u>as of 12/31/2012</u>	<u>Percentage of</u> <u>Capital Structure</u>
Long-Term Debt				
Big Chino Loan	10.000%	\$ 812	\$ 8,117	
WIFA Loan	4.20%	\$ 4,224	\$ 100,565	
WIFA Loan	5.6%	\$ 10,978	\$ 196,032	
Chase Loan	4.7%	\$ 1,520	\$ 32,330	
Long-Term Debt	5.2%	\$ 17,533	\$ 337,044	51.37%
Short-Term Debt		-		0.00%
Total Debt		\$ 17,533	\$ 337,044	51.37%
Common Equity			\$ 319,020	
Common Shares Outstanding				
Paid in Capital				
Retained Earnings				
Total Common Equity			\$ 319,020	48.63%
Total Capitalization			\$ 656,064	100.00%