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BEFORE THE ARIZONA CORPORATION CC

COMMISSIONERS

JEFF HATCH-MILLER, Chairman  
WILLIAM A. MUNDELL  
MIKE GLEASON  
KRISTIN K. MAYES  
BARRY WONG

IN THE MATTER OF THE APPLICATION  
OF GOODMAN WATER COMPANY FOR A  
RATE INCREASE.

DOCKET NO. W-02500A-06-0281

STAFF'S NOTICE OF FILING  
DIRECT TESTIMONY

The Arizona Corporation Commission Utilities Division ("Staff") hereby files the Direct  
Testimony of Charles P. Myhlhousen, Steven P. Irvine and Marlin Scott, Jr.

RESPECTFULLY SUBMITTED this 24<sup>th</sup> day of November 2006.

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1 Copy of the foregoing mailed this  
2 24<sup>th</sup> day of November 2006 to:

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**DIRECT  
TESTIMONY**

**OF**

**CHARLES R. MYHLHOUSEN  
STEVEN P. IRVINE  
MARLIN SCOTT, JR.**

**DOCKET NO. W-02500A-06-0281**

**IN THE MATTER OF THE APPLICATION OF  
GOODMAN WATER COMPANY FOR A  
PERMANENT RATE INCREASE**

**NOVEMBER 24, 2006**

**BEFORE THE ARIZONA CORPORATION COMMISSION**

JEFF HATCH-MILLER  
Chairman  
WILLIAM A. MUNDELL  
Commissioner  
MIKE GLEASON  
Commissioner  
KRISTIN K. MAYES  
Commissioner  
BARRY WONG  
Commissioner

IN THE MATTER OF THE APPLICATION OF ) DOCKET NO. W-02500A-06-0281  
GOODMAN WATER COMPANY FOR A )  
PERMANENT RATE INCREASE. )  
\_\_\_\_\_ )

DIRECT  
TESTIMONY  
OF  
CHARLES R. MYHLHOUSEN  
PUBLIC UTILITIES ANALYST III  
UTILITIES DIVISION  
ARIZONA CORPORATION COMMISSION

NOVEMBER 24, 2006

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**EXECUTIVE SUMMARY**  
**GOODMAN WATER COMPANY**  
**DOCKET NO. W-02500A-06-0281**

Goodman Water Company (“Goodman” or “Company”) is an Arizona corporation that provides water utility service to a community approximately two miles south of Oracle Junction and approximately 22 miles north of downtown Tucson. The Company served approximately 459 customers during the test year ended September 30, 2005. The Company’s current rates were approved with the original Certificate of Convenience and Necessity in Decision No. 56111, dated December 15, 1988. The Company began full operations in 2003.

The Company proposes rates that would produce operating revenue of \$537,955 producing operating income of \$133,947 for a 10.50 percent rate of return on a fair value rate base (“FVRB”) of \$1,275,683. The Company’s proposal would increase annual operating revenue by \$324,607 or 152.15 percent over test year revenues of \$213,348. Under the Company’s proposed rates, the typical residential 5/8 inch meter customer consuming the average of 5,509 gallons per month would experience a \$44.77 or 148.64 percent increase in their monthly bill from \$30.12 to \$74.89.

Staff recommends rates that would produce total operating revenue of \$446,411 producing operating income of \$121,977 for a 9.60 percent rate of return on a FVRB of \$1,270,589. Staff’s recommended revenue represents an increase of \$233,063 or 109.24 percent over test year revenue of \$213,348. Under Staff’s recommended rates, the typical residential 5/8 inch meter customer consuming the average of 5,509 gallons per month would experience a \$29.89 or 99.22 percent increase in their monthly bill from \$30.12 to \$60.01.

1     **INTRODUCTION**

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

3     A.     My name is Charles R. Myhlhousen. I am a Public Utilities Analyst III employed by the  
4           Arizona Corporation Commission (“ACC” or “Commission”) in the Utilities Division  
5           (“Staff”). My business 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  
9           information included in utility rate applications, developing revenue requirements,  
10          designing rates, preparing written reports and/or testimonies and related schedules that  
11          present Staff’s recommendations to the Commission. I am also responsible for testifying  
12          at formal hearing on these matters.

13

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

15     A.     I received a Bachelor of Sociology with an emphasis in business from Bellevue University  
16           located in Bellevue, Nebraska. In the ensuing years, I have taken various accounting  
17           courses. I have participated in multiple rate cases and other regulatory proceedings. I  
18           attended the National Association of Regulatory Utility Commission Utilities Rate School,  
19           and have attended seminars and courses in utility regulation and utility accounting.

20

21           I began employment with the Commission as a utilities regulatory analyst in October  
22           2000. Prior to joining the Commission, I worked at the Internal Revenue Service as a  
23           Revenue Agent for over twenty years.

24

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

2 A. I am presenting Staff's analysis and recommendations regarding Goodman Water  
3 Company's ("Goodman" or "Company") application for a permanent rate increase in the  
4 areas of rate base, operating income, revenue requirements, and rate design. Staff  
5 Witness Mr. Marlin Scott Jr. is presenting Staff's engineering analysis and  
6 recommendations. Staff witness Mr. Steve Irvine is presenting Staff's cost of capital  
7 analysis and recommendations.

8

9 **Q. When was the application for a rate increase filed by the Company?**

10 A. The original application was filed on April 26, 2006. but Staff found the application  
11 insufficient. The Company amended it and Staff found the application sufficient on July  
12 12, 2006.

13

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

15 A. Staff performed a regulatory audit of the Company's applications and records. The  
16 regulatory audit consisted of examining and testing financial information, accounting  
17 records, and other supporting documentation. Staff also verified that the accounting  
18 principles applied were in accordance with the Commission adopted National Association  
19 of Regulatory Utility Commissioners ("NARUC") Uniform System of Accounts  
20 ("USoA").

21

22 **Q. What test year was used by the Company in the filing?**

23 A. The Company used the twelve months ending September 30, 2005.

24

1 **Q. Did Staff accept the test year proposed by the Company?**

2 A. Yes. The September 30, 2005 test year selected was the most recent fiscal year available  
3 and should present a fairly accurate representation of the Company's financial operations  
4 for the determination of appropriate rates and charges.

5

6 **BACKGROUND**

7 **Q. Please briefly describe the Company background.**

8 A. The Company is a certificated Arizona corporation that provides water utility service in a  
9 community located approximately two miles south of Oracle Junction and approximately  
10 22 miles north of downtown Tucson. The Company served approximately 459 customers  
11 during the year ended September 30, 2005.

12

13 On April 26, 2006, the Company filed an application for a permanent rate increase. On  
14 July 12, 2006, Staff filed a letter declaring the application sufficient.

15

16 The Commission's Decision No. 56111, dated September 15, 1988, approved the  
17 Company's application for a Certificate of Convenience and Necessity ('CC&N'). That  
18 Order utilized an estimated revenue requirement and rate base to determine the authorized  
19 rates. This current rate application is the first application filed since the Company  
20 received its CC&N in 1988 and began full operations in 2003.

21

22 **Q. What are the primary reasons stated by the Company for requesting a permanent  
23 rate increase?**

24 A. The Company rates for water utility service have not been increased since its CC&N was  
25 approved in 1988. While the Company has been in business since 1988, it did not begin  
26 full operations until 2003. Since that time the Company has grown to approximately 459

1 customers at the end of the test year and has invested over \$2.33 million in plant. The  
2 Company's current rate of return, based on the adjusted test year data, is negative.  
3 Consequently, rate increases are necessary to ensure that the Company recovers its  
4 operating expenses and has an opportunity to earn a reasonable return on the fair value of  
5 its utility plant and property devoted to public service.

6  
7 **CONSUMER SERVICE**

8 **Q. Please provide a brief history of customer complaints, customers responses to the**  
9 **proposed rate increase, the Company's corporate standing with the Corporation**  
10 **Division and government impositions.**

11 A. Staff reviewed the Commission's records from year 2003 through August 6, 2006, and  
12 found one complaint concerning disconnect and termination of service. The complaint  
13 was resolved. No customer responses to this filing have been received. The Company is  
14 in good standing with the Corporation Division. The Company is current on all property  
15 and sales taxes.

16  
17 **SUMMARY OF TESTIMONY AND RECOMMENDATIONS**

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

19 A. The Company proposes rates that would produce operating revenue of \$537,955 and  
20 operating income of \$133,947 for a 10.50 percent rate of return on fair value rate base  
21 ("FVRB") of \$1,275,683. The Company's proposal would increase annual operating  
22 revenues by \$324,607 or 152.15 percent over test year revenues of \$213,348.

23  
24 **Q. Please summarize Staff's recommendations.**

25 A. Staff recommends total annual operating revenue of \$446,411 and operating income of  
26 \$121,977 for a 9.60 percent rate of return on a FVRB of 1,270,589. Staff's recommended

1 revenue represents an increase of \$233,063 or 109.24 percent over test year revenue of  
2 \$213,348. See Schedule CRM-1.

3  
4 **RATE BASE**

5 **Q. Please review the rate base recommendations addressed in this testimony.**

6 **A.** The Company, as filed, proposes a rate base of \$1,275,683. Staff recommends a rate base  
7 \$1,270,589, see Schedule CRM-3. For a detailed account of Staff's recommended  
8 adjustments, see Schedule CRM-4.

9  
10 **Q. Please review the rate base adjustments.**

11 **A.** My testimony addresses the following rate base issues.

12  
13 Adjustment No.1 Transmission Lines – Staff's adjustment increases transmission lines by  
14 \$17,325. The Company removed this amount from outside services in the adjusted test  
15 year income statement, however it failed to include this amount in the transmission lines  
16 account No. 331 of plant in service. See Schedule CRM-5.

17  
18 Adjustment No. 2 Accumulated Depreciation – Staff's adjustment increases accumulated  
19 depreciation in the amount of \$415, which reflects the difference between Staff's and the  
20 Company's calculation of accumulated depreciation on plant in services account No. 331  
21 of \$163 and account No. 334 of \$252. See Schedule CRM-7

22  
23 Adjustment No. 3 Working Capital – Staff's adjustment decreases cash working capital by  
24 \$22,033 from \$22,003 to zero. Staff typically only allows cash working capital  
25 allowances calculated by the formula method for small class D and E utilities. The  
26 formula method always produces a positive cash working capital need. Utilities classified

1 as A, B, or C are much larger and Staff believes that the formula method does not  
2 accurately reflect the related cash working capital needs. Typically Staff finds that proper  
3 lead/lag studies usually produce a negative cash working capital need. Staff recommends  
4 disallowance of any cash working capital allowance in this case. See Schedule CRM-6.  
5

6 **OPERATING INCOME**

7 **Q. What are the results of Staff's analysis of test year revenues, expenses and operating**  
8 **income/loss?**

9 **A.** Staff's analysis reflects adjusted test year revenues of \$213,348, expenses of \$255,723 and  
10 operating loss of \$42,375 as shown on Schedules CRM-8 and CRM-9. Staff made seven  
11 adjustments to operating expenses.  
12

13 **Q. Please review the Staff adjustments to operating expenses.**

14 **A.** My testimony addresses the following issues:  
15

16 Adjustment No. 1 – Salaries and Wages – Staff's adjustment decreased this expense by  
17 \$25,600 from \$32,000 to \$6,400 to disallow various functions that the Company was  
18 unable to provide time cards for, or other substantiation of, the separation of duties  
19 between outside services and the employee of the Company. Staff's adjustment provided  
20 for the portion of employee duties dedicated to day to day operations. See Schedule  
21 CRM-10.  
22

23 Adjustment No. 2 – Repairs and Maintenance – Staff's adjustment decreased this expense  
24 by \$4,130 from \$9,868 to \$5,738 as shown on schedule CRM-11. The Company no  
25 longer uses P & H Contracting. This will not be a going-forward expense, as the duties  
26 performed by P & H Contracting were already being performed by other contractors.

1           Adjustment No. 3 – Outside Services – Staff’s adjustment decreased this expense by  
2           \$17,867 from \$78,106 to \$60,239 as shown on Schedule CRM-12. Staff removed \$174  
3           for meals paid for Mr. Christopher Hill and Mr. J.A. Shiner. Mr. Shiner is a part owner of  
4           the Company. Mr. Christopher Hill provides outside services of approximately 4 to 8  
5           hours a month for the Company.

6  
7           Staff removed \$11,916 paid to CWH2 Company for outside services provided. This  
8           Company is owned by Mr. Christopher Hill. CWH2 only spends approximately 4 to 8  
9           hours a month providing services. These services are similar to, and a duplication of,  
10          some of the services provided by Y.L. Technology.

11  
12          The Company paid to Mr. J.A. Shiner \$17,325. Staff removed \$5,777 of the amount paid.  
13          Mr. J.A. Shiner is part owner of the Company. He is involved in the review of the day to  
14          day operations and also does future planning for the Company. Staff allowed an amount it  
15          determined was appropriate for the services provided.

16  
17          Adjustment No. 4 – Regulatory Commission Expense – Rate Case – Staff’s adjustment  
18          decreased this expense by \$1,875 to remove the estimated cost claimed for possible  
19          contingencies as shown on Schedule CRM-13.

20  
21          Adjustment No. 5 – Miscellaneous Expense – Staff’s adjustment decreased this expense  
22          by \$140 to reflect disallowance of cost of lunches with Mr. J.A. Shiner as shown on  
23          Schedule CRM-14.

24  
25          Adjustment No. 6 – Property Tax Expense – Staff’s adjustment decreased this expense by  
26          \$1,719 from \$19,270 to \$17,551 as shown on Schedule CRM-15, to reflect Staff’s

1 adjusted test year recommended revenue and using the calculation for the modified  
2 Arizona Department of Revenue property tax method.

3  
4 Adjustment No. 7 – Income Tax Expense – Staff’s adjustment decreased income tax by  
5 \$17,222 from (\$41,497) to (\$24,275) as shown on Schedules CRM-2 and CRM-16 to  
6 reflect the application of statutory state and federal income tax rates to Staff’s  
7 recommended taxable income.

8  
9 **REVENUE REQUIREMENT**

10 **Q. Would you please summarize the Company’s proposed revenue requirement?**

11 A. The Company’s rate filing proposes annual revenues of \$537,955, an increase of \$324,607  
12 or 52.15 percent over test year adjusted revenues of \$213,348 as shown on Schedule  
13 CRM-1.

14  
15 **Q. Would you please summarize Staff’s recommended revenue requirement?**

16 A. Staff recommends annual revenue of \$446,411, an increase of \$233,063 or 109.24 percent  
17 over test year adjusted revenues of \$213,348 as shown on Schedule CRM-9.

18  
19 **BASIS FOR OPERATING INCOME DETERMINATION**

20 **Q. What is the appropriate method to determine the Company’s operating income and  
21 revenue requirement?**

22 A. Operating income should be calculated by applying the recommended cost of capital to the  
23 FVRB. Revenue requirement is equal to the sum of operating expenses and the authorized  
24 rate of return.

25

1 **Q. What is the appropriate rate of return on FVRB?**

2 A. The appropriate rate of return on FVRB is the one that results in the revenue requirement,  
3 as discussed in the testimony of Staff witness Mr. Steve Irvine.

4

5 **RATE DESIGN**

6 **Q Have you prepared a schedule summarizing the present, Company proposed, and**  
7 **Staff recommended rates and service charges?**

8 A. Yes. A summary of the present, Company proposed, and Staff recommended rates and  
9 service charges are provided on Schedule CRM-18.

10

11 **Q. Would you please summarize the current rate design?**

12 A. The present monthly minimum charges by meter sizes are as follows: 5/8 x 3/4 inch  
13 \$18.00; 3/4 inch \$27.00; 1 inch \$48.00; 1 1/2 inch \$90.00; 2 inch \$144.00; 3 inch \$270.00; 4  
14 inch \$450.00; 6 inch \$900.00. One thousand gallons are included in the monthly  
15 minimum charge for the 5/8 x 3/4 inch meter only. No gallons are included in the monthly  
16 minimum charge for all other meter sizes and customer classes. The present commodity  
17 rate is \$2.20 per thousand gallons. These rates apply to all residential, commercial and  
18 irrigation customers.

19

20 For irrigation customers, the monthly minimum charge is the same based upon meter size  
21 with zero gallons included in the monthly minimum charge and a commodity rate of \$2.20  
22 per thousand gallons. For standpipe or bulk water customers the rate is \$4.75 per 1,000  
23 gallons.

24

1 **Q. Would you please summarize the Company's proposed rate design?**

2 A. The Company's proposed monthly minimum charges by meter size are as follows: 5/8  
3 x3/4 inch \$44.78; 3/4 inch \$67.18; 1 inch \$111.96; 1 1/2 inch \$223.92; 2 inch \$358.27; 3  
4 inch \$671.76; 4 inch \$1,119.60; 6 inch \$2,239.20. No gallons are included in the  
5 minimum charge. The Company proposes a three tier commodity rate with different break  
6 over points for 5/8 x 3/4 inch residential meters and a two tier commodity rate for all other  
7 meter sizes. The first, second and third tier rates are \$5.00, \$6.70 and \$7.70 per thousand  
8 gallons. These rates apply to residential, commercial and irrigation customers.

9  
10 For irrigation customers the Company's proposed monthly minimum charge is the same  
11 based on meter size. The commodity charge is the same based on meter size.

12  
13 The Company's proposed charge for standpipe or bulk water customers is \$7.70 per 1,000  
14 gallons.

15  
16 **Q. Would you please summarize Staff's recommended rate design?**

17 A. Staff recommends an inverted tier rate design that consists of three tiers for the 5/8 x 3/4  
18 inch meter for residential customers and two tiers for all others. The additional tier for the  
19 residential 5/8 x3/4 inch meters is for the first 4,000 gallons. Efficiency in water use is  
20 encouraged by producing a higher customer bill with increased consumption or use of a  
21 larger meter. Irrigation and standpipe rates have been increased. A typical bill analysis is  
22 provided in Schedule CRM-19, and typical bill for average and median use under present,  
23 Company proposed, and Staff recommended rates are presented on Schedule CRM-19.

24

1 **Q. What is the rate impact on a typical 5/8 x 3/4 inch meter residential customer?**

2 A. The average usage of residential 5/8 x 3/4 inch meter customers is 5,509 gallons per month.  
3 The average residential 5/8 x 3/4 inch-meter customers would experience a \$44.77 or  
4 148.64 percent increase in their monthly bill from \$30.12 to \$74.89 under the Company's  
5 proposed rates and a \$30.50 or 98.53 percent increase in their monthly bill from \$27.90 to  
6 \$55.39 under Staff's recommended rates.

7

8 Staff recommends accepting the Company's proposed services charges and service line  
9 and meter installation charges with the exceptions of, 1) the 5 inch service line and  
10 installation charges since a 5-inch meter does not exist, and 2) late charge per month of  
11 \$10.00 proposed by the Company. Staff recommends a late charge of 1.50 percent per  
12 month on the unpaid balance.

13

14 **RECOMMENDATIONS:**

15 **Q. What is Staff recommending?**

16 A. Staff recommends a provision be included in the Company's tariff to allow for the flow-  
17 through of all appropriate state and local taxes as provided for in A.A.C. Rule 14-2-  
18 409(D)(5).

19

20 Staff further recommends that the Company be ordered to utilize the new depreciation  
21 rates delineated on Schedule CRM-17.

22

23 Staff further recommends approval of its rates and charges as shown on Schedule CRM-18  
24 pages 1 and 2.

25

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

2 A. Yes, it does.

GOODMAN WATER COMPANY  
Docket No. W-02500A-06-0281  
Test Year Ended SEPTEMBER 30, 2005

DIRECT TESTIMONY OF CHARLES R. MYHLHOUSEN

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CRM-17	Depreciation Expense
CRM-18	Rate Design
CRM-19	Typical Bill Analysis

**REVENUE REQUIREMENT**

<u>LINE NO.</u>	<u>DESCRIPTION</u>	(A) COMPANY <u>ORIGINAL COST</u>	(B) COMPANY <u>FAIR VALUE</u>	(C) STAFF <u>ORIGINAL COST</u>	(D) STAFF <u>FAIR VALUE</u>
1	Adjusted Rate Base	\$ 1,275,683	\$ 1,275,683	\$ 1,270,589	\$ 1,270,589
2	Adjusted Operating Income (Loss)	\$ (76,594)	\$ (76,594)	\$ (42,375)	\$ (42,375)
3	Current Rate of Return (L2 / L1)	-6.00%	-6.00%	-3.34%	-3.34%
4	Required Rate of Return	10.50%	10.50%	9.60%	9.60%
5	Required Operating Income (L4 * L1)	\$ 133,947	\$ 133,947	\$ 121,977	\$ 121,977
6	Operating Income Deficiency (L5 - L2)	\$ 210,541	\$ 210,541	\$ 164,351	\$ 164,351
7	Gross Revenue Conversion Factor	1.5418	1.5418	1.4181	1.4181
8	Required Revenue Increase (L7 * L6)	\$ 324,607	\$ 324,607	\$ 233,063	\$ 233,063
9	Adjusted Test Year Revenue	\$ 213,348	\$ 213,348	\$ 213,348	\$ 213,348
10	Proposed Annual Revenue (L8 + L9)	\$ 537,955	\$ 537,955	\$ 446,411	\$ 446,411
11	Required Increase in Revenue (%)	152.15%	152.15%	109.24%	109.24%
12	Rate of Return on Common Equity (%)	10.50%	10.50%	9.60%	9.60%

References:

Column (A): Company Schedule A-1  
Column (B): Company Schedule A-1  
Column (C): Staff Schedule CRM-3  
Column (D): Staff Schedule CRM-3

**GROSS REVENUE CONVERSION FACTOR**

LINE NO.	DESCRIPTION	(A)	(B)	(C)	(D)
<i>Calculation of Gross Revenue Conversion Factor:</i>					
1	Revenue	100.0000%			
2	Uncollectible Factor (Line 11)	0.0000%			
3	Revenues (L1 - L2)	100.0000%			
4	Combined Federal and State Tax Rate (Line 17)	29.1592%			
5	Subtotal (L3 - L4)	70.8408%			
6	Revenue Conversion Factor (L1 / L5)	1.411617			
<i>Calculation of Uncollectible Factor:</i>					
7	Unity	100.0000%			
8	Combined Federal and State Tax Rate (Line 17)	29.1592%			
9	One Minus Combined Income Tax Rate (L7 - L8)	70.8408%			
10	Uncollectible Rate	0.0000%			
11	Uncollectible Factor (L9 * L10)	0.0000%			
<i>Calculation of Effective Tax Rate:</i>					
12	Operating Income Before Taxes (Arizona Taxable Income)	100.0000%			
13	Arizona State Income Tax Rate	6.9680%			
14	Federal Taxable Income (L12 - L13)	93.0320%			
15	Applicable Federal Income Tax Rate (Line 44)	23.8533%			
16	Effective Federal Income Tax Rate (L14 x L15)	22.1912%			
17	Combined Federal and State Income Tax Rate (L13 +L16)	29.1592%			
18	Required Operating Income (Schedule CRM-9 Col (E) Line 42)	\$ 121,977			
19	Adjusted Test Year Operating Income (Loss) (Schedule CRM-9 Line 42)	\$ (42,375)			
20	Required Increase in Operating Income (L18 - L19)		\$ 164,351		
21	Income Taxes on Recommended Revenue (Col. (D), L43)	\$ 43,684			
22	Income Taxes on Test Year Revenue (Col. (B), L43)	\$ (24,275)			
23	Required Increase in Revenue to Provide for Income Taxes (L21 - L22)		\$ 67,959		
24	Recommended Revenue Requirement (Schedule CRM-1, Line 30)	\$ 446,411			
25	Uncollectible Rate (Line 10)	0.0000%			
26	Uncollectible Expense on Recommended Revenue (L24 * L25)	\$ -			
27	Adjusted Test Year Uncollectible Expense	\$ -			
28	Required Increase in Revenue to Provide for Uncollectible Exp. (L26 - L27)		\$ -		
29	Total Required Increase in Revenue (L20 + L23 + L28)		\$ 232,311		
<i>Calculation of Income Tax:</i>					
		Test Year	STAFF Recommended		
30	Revenue (Schedule CRM-9 Col (E) Line 5) & CRM-1 Col (B) Line 8	\$ 213,348	\$ 233,063	\$ 446,411	
31	Operating Expenses Excluding Income Taxes	\$ 279,998		\$ 279,998	
32	Synchronized Interest (L47)	\$ 26,682		\$ 26,682	
33	Arizona Taxable Income (L30 - L31 - L32)	\$ (93,332)		\$ 139,731	
34	Arizona State Income Tax Rate	6.9680%		6.9680%	
35	Arizona Income Tax (L33 x L34)	\$ (6,503)		\$ 9,736	
36	Federal Taxable Income (L33 - L35)	\$ (86,829)		\$ 129,994	
37	Federal Tax on First Income Bracket (\$1 - \$50,000) @ 15%	\$ (7,500)		\$ 7,500	
38	Federal Tax on Second Income Bracket (\$50,001 - \$75,000) @ 25%	\$ (6,250)		\$ 6,250	
39	Federal Tax on Third Income Bracket (\$75,001 - \$100,000) @ 34%	\$ (4,022)		\$ 8,500	
40	Federal Tax on Fourth Income Bracket (\$100,001 - \$335,000) @ 39%	\$ -		\$ 11,698	
41	Federal Tax on Fifth Income Bracket (\$335,001 - \$10,000,000) @ 34%	\$ -		\$ -	
42	Total Federal Income Tax	\$ (17,772)		\$ 33,948	
43	Combined Federal and State Income Tax (L35 + L42)	\$ (24,275)		\$ 43,684	
44	Applicable Federal Income Tax Rate [Col. (D), L42 - Col. (B), L42] / [Col. (C), L36 - Col. (A), L36]			23.8533%	
<i>Calculation of Interest Synchronization:</i>					
45	Rate Base (Schedule CRM-3, Col. (C), Line 17)	\$ 1,270,589			
46	Weighted Average Cost of Debt	2.10%			
47	Synchronized Interest (L45 X L46)	\$ 26,682			

LINE NO.	(A) COMPANY AS FILED	(B) STAFF ADJUSTMENTS	REF	(C) STAFF AS ADJUSTED
1	\$ 2,348,486	\$ 17,325	1	\$ 2,365,811
2	108,248	415	2	108,663
3	<u>\$ 2,240,238</u>	<u>\$ 16,910</u>		<u>\$ 2,257,148</u>
 <u>LESS:</u>				
4	\$ -	\$ -		\$ -
5	-	-		-
6	<u>-</u>	<u>-</u>		<u>-</u>
7	971,695	-		971,695
8	14,864	-		14,864
9	-	-		-
 <u>ADD:</u>				
10	-	-		-
11	-	-		-
12	22,003	(22,003)	3	-
17	<u>\$ 1,275,683</u>	<u>\$ (5,093)</u>		<u>\$ 1,270,589</u>

References:

Column (A), Company Schedule B-1

Column (B): Schedule CRM-4

Column (C): Column (A) + Column (B)

GOODMAN WATER COMPANY  
DocId: No. W-02500A-08-0281  
Test Year Ended September 30, 2005

**SUMMARY OF ORIGINAL COST RATE BASE ADJUSTMENTS**

LINE NO.	ACCT. NO.	DESCRIPTION	(A) COMPANY AS FILED	(B) ADJ.#1 Transmission	(C) ADJ.#2 Accum. Depr.	(D) ADJ.#3 Working Capital	(E) ADJ.#4	(F) ADJ.#5	(G) ADJ.#6	(H) ADJ.#7	(I) STAFF ADJUSTED
<b>PLANT IN SERVICE</b>											
1	301	Organization	\$ 104,528								104,528
2	302	Franchises									
3	303	Land and Land Rights									
4	304	Structures & Improvements	9,788								9,788
5	305	Collecting & Impounding Reservoirs									
6	306	Lakes, Rivers, Other Intakes									
7	307	Wells and Springs	386,591								386,591
8	308	Infiltration Galleries and Tunnels									
9	309	Supply Mains									
10	310	Power Generation Equipment									
11	311	Pumping Equipment	688,993								688,993
12	312	Water Treatment Plant	11,054								11,054
13	320	Distribution Reservoirs & Standpipes	294,460								294,460
14	330	Transmission & Distribution Mains	611,348	17,325							628,673
15	331	Services	129,274								129,274
16	333	Meters	67,497								67,497
17	334	Hydrants	48,855								48,855
18	335	Backflow Prevention Devices									
19	338	Other Plant & Misc. Equipment									
20	339	Office Furniture & Equipment									
21	340	Transportation Equipment									
22	341	Stores Equipment									
23	342	Tools, Shop & Garage Equipment									
24	343	Laboratory Equipment									
25	344	Power Operated Equipment									
26	345	Communication Equipment									
27	346	Miscellaneous Equipment									
28	347	Other Tangible Plant									
29	348										
30		Add:	2,348,488	17,325							2,365,811
31											
32											
33											
34											
35		Less:									
36											
37											
38		Total Plant in Service	\$ 2,348,488	\$ 17,325	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,365,811
39		Less: Accumulated Depreciation	108,248		415						108,663
40											
41		Net Plant in Service (L50 - L 60)	\$ 2,240,238	\$ 17,325	\$ (415)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,257,148
42											
43		LESS:									
44		Contributions in Aid of Construction (CIAC)									
45		Less: Accumulated Amortization									
46		Net CIAC (L25 - L28)	971,606								971,606
47		Advances in Aid of Construction (AIAC)	14,884								14,884
48		Customer Meter Deposits									
49		Deferred Income Tax Credits									
50											
51		ADD:									
52		Unamortized Finance Charges									
53		Deferred Tax Assets									
54		Working Capital	22,003		(22,003)						
55		Not allowed in class C and larger									
56		without landfill study									
57		Original Cost Rate Base	\$ 3,275,842	\$ 17,325	\$ (415)	\$ (22,003)	\$ -	\$ -	\$ -	\$ -	\$ 1,270,589

ADJ.#	Reference:
1	Transmission Lines
2	Accumulated Depreciation
3	Cash Working Capital
	Schedule CRM-5
	Schedule CRM-8
	Schedule CRM-7

ORIGINAL COST RATE BASE ADJUSTMENT #1 TO RECLASSIFY PLANT FROM OUTSIDE SERVICES

<u>Line No.</u>	<u>To Reclassify Plant From Outside Services</u>	
1	Reclassification of Outside Services - Transmission Lines	<u>\$ 17,325</u>
2	This expense was removed by the Company in a proforma adjustment from outside services expense but Company failed to include in plant.	<u>\$ 17,325</u>
3		<u>\$ 17,325</u>

ORIGINAL COST RATE BASE ADJUSTMENT #2 - ACCUMULATED DEPRECIATION

Line No.	<u>Accumulated Depreciation Adjustment</u>	
1	Staff's Calculated Balance	\$ 108,663
2	Company's Adjusted Accum. Depr. - Sched. B-2	108,248
3	Difference	<u>\$ 415</u>
4	Increase/(Decrease) to Accumulated Depreciation	<u>\$ 415</u>

ORIGINAL COST RATE BASE ADJUSTMENTS #3 - REMOVAL OF CASH WORKLING CAPITAL ALLOWANCE

Line No.	<u>Cash Working Capital Allowance</u>	
1	Company's Cash Working Capital Allowance no lead/lag study provided	22,003
2	Staff's Cash Working Capital Allowance	<u>0.00</u>
3	total	0.00
4		
5		
6	Increase/(Decrease) to Cash Working Capital Allowance	<u><u>(22,003)</u></u>

**OPERATING INCOME STATEMENT - ADJUSTED TEST YEAR AND STAFF RECOMMENDED**

LINE NO.	DESCRIPTION	[A] COMPANY ADJUSTED TEST YEAR AS FILED	[B] STAFF TEST YEAR ADJUSTMENTS	[C] STAFF TEST YEAR AS ADJUSTED	[D] STAFF RECOMMENDED CHANGES	[E] STAFF RECOMMENDED
1	<b>REVENUES:</b>					
2	Metered Water Sales	\$ 195,408	\$ -	\$ 195,408	\$ 233,063	\$ 428,471
3	Water Sales - Unmetered	-	-	-	-	-
4	Other Operating Revenue	17,940	-	17,940	-	17,940
5	<b>Total Operating Revenues</b>	<b>\$ 213,348</b>	<b>\$ -</b>	<b>\$ 213,348</b>	<b>\$ 233,063</b>	<b>\$ 446,411</b>
6	<b>OPERATING EXPENSES:</b>					
7	Salaries and Wages	\$ 32,000	\$ (25,600)	10 \$ 6,400	\$ -	\$ 6,400
10	Purchased Water	-	-	-	-	-
11	Purchased Power	10,086	-	10,086	-	10,086
13	Chemicals	-	-	-	-	-
14	Repairs and Maintenance	9,868	(4,130)	11 5,738	-	5,738
15	Office Supplies and Expense	778	-	778	-	778
16	Outside Services	78,106	(17,867)	12 60,239	-	60,239
17	Water Testing	3,639	-	3,639	-	3,639
18	Rents	-	-	-	-	-
19	Transportation Expenses	-	-	-	-	-
20	Insurance - General Liability	18,253	-	18,253	-	18,253
21	Insurance - Health and Life	-	-	-	-	-
22	Regulatory Commission Expense - Rate Case	25,000	(1,875)	13 23,125	-	23,125
23	Miscellaneous Expense	2,386	(140)	14 2,246	-	2,246
24	Depreciation Expense	129,418	-	129,418	-	129,418
25	Taxes Other Than Income	2,635	-	2,635	-	2,635
26	Property Taxes	19,270	(1,829)	15 17,441	-	17,441
27	Income Tax	(41,497)	17,222	16 (24,275)	67,959	43,684
40						
41	<b>Total Operating Expenses</b>	<b>\$ 289,942</b>	<b>\$ (34,219)</b>	<b>\$ 255,723</b>	<b>\$ 67,959</b>	<b>\$ 323,682</b>
42	<b>Operating Income (Loss)</b>	<b>\$ (76,594)</b>	<b>\$ 34,219</b>	<b>\$ (42,375)</b>	<b>\$ 165,103</b>	<b>\$ 122,729</b>

**References:**

Column (A): Company Schedule C-1  
Column (B): Schedule CRM-10  
Column (C): Column (A) + Column (B)  
Column (D): Schedules CRM-1 and CRM-2  
Column (E): Column (C) + Column (D)

SUMMARY OF OPERATING INCOME STATEMENT ADJUSTMENTS - TEST YEAR

LINE NO.	DESCRIPTION	(A) COMPANY AS FILED	(B) Salaries & Wages ADJ.#1	(C) Repairs & Maint ADJ.#2	(D) Outside Services ADJ.#3	(E) Rate Case ADJ.#4	(F) Miscellaneous ADJ.#5	(G) Property Taxes ADJ.#6	(H) Income taxes ADJ.#7	(I) STAFF ADJUSTED
1	<b>REVENUES:</b>									
2	Metered Water Sales	\$ 195,408								\$ 195,408
3	Water Sales - Unmetered									
4	Other Operating Revenue	17,940								17,940
5	Total Operating Revenues	213,348								213,348
6	<b>OPERATING EXPENSES:</b>									
7	Salaries and Wages	\$ 32,000	(25,600)							\$ 6,400
8	Purchased Water									
9	Purchased Power	10,086								10,086
10	Chemicals			(4,130)						
11	Repairs and Maintenance	9,888								9,888
12	Office Supplies and Expense	778								778
13	Outside Services	78,108		(17,887)						60,239
14	Water Testing	3,639								3,639
15	Rents									
16	Transportation Expenses									
17	Insurance - General Liability	18,253								18,253
18	Insurance - Health and Life									
19	Regulatory Commission Expense - Rate Case	25,000				(1,875)				23,125
20	Miscellaneous Expense	2,386					(140)			2,246
21	Depreciation Expense	129,418								129,418
22	Taxes Other Than Income	2,635								2,635
23	Property taxes	19,270						(1,829)		17,441
24	Income Tax	(41,487)							17,222	(24,275)
25	Total Operating Expenses	289,943	(25,600)	(4,130)	(17,887)	(1,875)	(140)	(1,829)	17,222	255,723
26	Operating Income (Loss)	(76,594)	25,600	4,130	17,887	1,875	140	1,829	(17,222)	(42,375)

ADJ.#	Reference:
1	Salaries and Wages
2	Repairs and Maintenance Expense
3	Outside Services Expense
4	Regulatory Commission Expense rate case
5	Miscellaneous Expense
6	Property Taxes
7	Income Taxes
	Schedule CRM-17
	Schedule CRM-18
	Schedule CRM-19
	Schedule CRM-20
	Schedule CRM-21
	Schedule CRM-22
	Schedule CRM-23

OPERATING EXPENSE ADJUSTMENT #1 - SALARIES AND WAGES

LINE

NO.

Salaries and Wages

1	amount claimed on application	\$ 32,000
2	Amount Disallowed for future planning	<u>(25,600)</u>
3	Amount allowed	<u>\$ 6,400</u>
4	Increase (Decrease) to Salaries and Wages	<u>\$ (25,600)</u>

OPERATING EXPENSE ADJUSTMENT #2 - REPAIRS AND MAINTENANCE

LINE

NO.

Repairs and Maintenance

1	Amount claimed on application	\$	9,868
2	Amount decreased- P&H Contracting No longer used by Company	\$	5,738
3	Increase (decrease) to Repairs and Maintenance	\$	<u>(4,130)</u>

OPERATING INCOME ADJUSTMENT #3 - OUTSIDE SERVICES

LINE NO.	<u>Outside Services</u>		
1	Amount claimed on application		\$ 78,106
2	Amount decreased- lunch with J.S. Shiner	\$ (174)	
3	CWH2 Duplication of oversee	(11,916)	
3	Shiner for future planning not day to day operations	<u>(5,777)</u>	
5	Total disallowed	(17,867)	<u>(17,867)</u>
	Total Allowed		\$ 60,239
6	Increase (Decrease)		
	Increase (Decrease)		<u>\$ (17,867)</u>

OPERATING INCOME ADJUSTMENT # 4 REGULATORY COMMISSION EXPENSE-RATE CASE

<u>LINE NO.</u>	<u>Regulatory Commission Expense -Rate Case</u>	
1	Total Rate Case expense claimed by the Company	\$ 100,000
2	This amount amortized by Company over 4 years	<u>25,000</u>
3		
	Amount allowed by Staff	\$ 92,500
4	Staff amortized over 4 years Amount per year	<u>23,125</u>
5		
	Amount claimed by Company during test year	\$ 25,000
6	Amount disallowed by Staff	<u>(1,875)</u>
	Amount allowed by Staff	<u>\$ 23,125</u>
	Increase (Decrease)	<u>\$ (1,875)</u>

OPERATING INCOME ADJUSTMENT #5 - MISCELLANEOUS EXPENSE

<u>LINE NO.</u>	<u>Miscellaneous Expense</u>			
1	Amount claimed on application	\$	2,386	
2	Amount decreased- lunch with J.S. Shiner		<u>140</u>	
3		\$	2,526	
4	Increase (decrease) to Miscellaneous Expense			<u>\$ (140)</u>

OPERATING INCOME ADJUSTMENT #6 - PROPERTY TAXES

LINE NO.	Property Tax Calculation	[A]	[B]	(C)
		COMPANY AS FILED	STAFF ADJUSTMENT	STAFF AS ADJUSTED
1	Staff Adjusted Test Year Revenues			\$ 213,348
2	Weight Factor			2
3	Subtotal (Line 1 * Line 2)			426,696
4	Staff Recommended Revenue, Per Schedule CRM-1			446,411
5	Subtotal (Line 4 + Line 5)			873,107
6	Number of Years			3
7	Three Year Average (Line 5 / Line 6)			291,036
8	Department of Revenue Multiplier			2
9	Revenue Base Value (Line 7 * Line 8)			582,071
10	Plus: 10% of CWIP - 2002			-
11	Less: Net Book Value of Licensed Vehicles			-
12	Full Cash Value (Line 9 + Line 10 - Line 11)			582071.22
13	Assessment Ratio			23.50%
14	Assessment Value (Line 12 * Line 13)			136,787
15	Composite Property Tax Rate (Per Company Schedule C-2, Page 3, Line 16)			12.7504%
16	Staff Proposed Property Tax Expense (Line 14 * Line 15)			\$ 17,441
17	Company Proposed Property Tax			19,270
18	Increase/(Decrease) to Property Tax Expense			\$ (1,829)

OPERATING INCOME ADJUSTMENT #7 - INCOME TAXES

<u>Line No.</u>	<u>Income Tax</u>	
1	Staff Calculated Income Tax, Per Staff Schedule JRM-2, Line 43	\$ (24,275)
2	Income Tax, Per Company Schedule C-1	<u>(41,497)</u>
3	Increase/(Decrease) to Income Tax Expense	<u>\$ 17,222</u>
	See Schedule CRM -2 for calculation	

DEPRECIATION EXPENSE

Line No.	ACCT NO.	DESCRIPTION	AMOUNT	Projected RATE	EXPENSE
<b>Plant In Service</b>					
1	301	Organization	\$ 104,528	0.00%	\$ -
2	302	Franchises	-	0.00%	-
3	303	Land and Land Rights	-	0.00%	-
4	304	Structures & Improvements	9,788	3.33%	326
5	305	Collecting & Impounding Reservoirs	-	2.50%	-
6	306	Lakes, Rivers, Other Intakes	-	2.50%	-
7	307	Wells and Springs	386,591	3.33%	12,873
8	308	Infiltration Galleries and Tunnels	-	6.67%	-
9	309	Supply Mains	-	2.00%	-
10	310	Power Generation Equipment	-	5.00%	-
11	311	Pumping Equipment	686,993	12.50%	85,874
12	320	Water Treatment Plant	11,054	3.33%	368
13	330	Distribution Reservoirs & Standpipes	294,460	2.22%	6,537
14	331	Transmission & Distribution Mains	628,673	2.00%	12,573
15	333	Services	129,274	3.33%	4,305
16	334	Meters	67,497	8.33%	5,623
17	335	Hydrants	46,955	2.00%	939
18	336	Backflow Prevention Devices	-	6.67%	-
19	339	Other Plant & Misc. Equipment	-	6.67%	-
20	340	Office Furniture & Equipment	-	6.67%	-
21	341	Transportation Equipment	-	20.00%	-
22	342	Stores Equipment	-	4.00%	-
23	343	Tools, Ship & Garage Equipment	-	5.00%	-
24	344	Laboratory Equipment	-	10.00%	-
25	345	Power Operated Equipment	-	5.00%	-
26	346	Communication Equipment	-	10.00%	-
27	347	Miscellaneous Equipment	-	10.00%	-
28	348	Other Tangible Plant	-	-	-
29		Subtotal General	<u>\$ 2,365,811</u>		<u>\$ 129,418</u>

**RATE DESIGN**

Monthly Usage Charge	Present Rates	Company Proposed Rates	Staff Recommended Rates
5/8x3/4' Meter	\$ 18.00	\$ 44.78	\$ 39.00
3/4" Meter	27.00	67.18	95.00
1" Meter	48.00	111.96	195.00
1 1/2" Meter	90.00	223.92	305.00
2" Meter	144.00	358.27	624.00
3" Meter	270.00	671.76	975.00
4" Meter	450.00	1,119.60	1,950.00
5" Meter	Meter size does not exist n/a	n/a	deleted
6" Meter	900.00	2,239.20	4,485.00 8,385.00
Fire Hydrants Per month	Deleted from tariff 15.00	0.00	deleted
<b>Commodity Rates</b>			
5/8x3/4 inch meter			
Gallons Included in Minimum	1,000	0	0
Excess over gallons included in minimum			
Per 1,000 Gallons	\$ 2.20	N/A	N/A
<b>5/8 x 3/4 inch meter per 1,000 Gallons</b>			
Tier one From zero to 4,000 Gallons	N/A	5.00	N/A
Tier two From 4,000 to 10,000 Gallons	N/A	6.70	N/A
Tier three Over 10,000 Gallons	N/A	7.70	N/A
Tier one From 1 to 4,000 Gallons	N/A	N/A	3.35
Tier two From 4,001 to 9,000 Gallons	N/A	N/A	5.04
Tier three Over 9,000 Gallons	N/A	N/A	6.00
<b>One inch meter and Larger per 1,000 Gallons</b>			
Tier one Zero Gallons to 10,000 Gallons	2.20	N/A	N/A
Tier two From 10,001 Gallons to 25,000 Gallons	N/A	5.00	N/A
Tier three All Gallons over 25,000 Gallons	N/A	6.70	N/A
<b>3/4 inch meter per 1,000 Gallons</b>			
Tier one Zero Gallons to 30,000 Gallons	N/A	N/A	5.04
Tier two All Gallons over 30,000 gallons	N/A	N/A	6.00
<b>One inch Meter per 1,000 Gallons</b>			
Tier one Zero Gallons to 75,000 Gallons	N/A	N/A	5.04
Tier two All Gallons over 75,000 Gallons	N/A	N/A	6.00
<b>1 1/2 inch meter per 1,000 Gallons</b>			
Tier one Zero Gallons to 100,000 Gallons	N/A	N/A	5.04
Tier two All Gallons over 100,000 Gallons	N/A	N/A	6.00
<b>Two inch meter per 1,000 Gallons</b>			
Tier one Zero Gallons to 225,000 Gallons	N/A	N/A	5.04
Tier two All Gallons over 225,000 Gallons	N/A	N/A	6.00
<b>Three inch meter per 1,000 Gallons</b>			
Tier one Zero Gallons to 350,000 Gallons	N/A	N/A	5.04
Tier two All Gallons over 350,000 Gallons	N/A	N/A	6.00
<b>Four inch meter per 1,000 gallons</b>			
Tier one Zero Gallons to 725,000 Gallons	N/A	N/A	5.04
Tier two All Gallons over 725,000 Gallons	N/A	N/A	6.00
<b>Six inch meter per 1,000 Gallons</b>			
Tier one Zero Gallons to 1,500,000 Gallons	N/A	N/A	5.04
Tier two All Gallons over 1,500,000 Gallons	N/A	N/A	6.00
Irrigation see above per meter sizes	see above per meter sizes	see above per meter sizes	see above per meter sizes
Standpipe per 1,000 gallons	4.75	7.70	6.22

<b>Service Line and Meter Installation Charges</b>			
5/8" x 3/4" Meter	\$ 225.00	\$ 225.00	\$ 225.00
3/4" Meter	\$ 270.00	\$ 270.00	\$ 270.00
1" Meter	\$ 300.00	\$ 300.00	\$ 300.00
1½" Meter	\$ 425.00	\$ 425.00	\$ 425.00
2" Turbine Meter	\$ 550.00	\$ 550.00	\$ 550.00
3" Turbine Meter	\$ 750.00	\$ 750.00	\$ 750.00
4" Turbine Meter	\$ 1,375.00	\$ 1,375.00	\$ 1,375.00
5" Turbine Meter	meter size does not exist \$ 2,090.00	\$ 2,090.00	Deleted
6" Turbine Meter	\$ 2,800.00	\$ 2,800.00	\$ 2,800.00
<b>Service Charges</b>			
Establishment	\$ 50.00	\$ 50.00	\$ 50.00
Establishment (After Hours)	75.00	75.00	75.00
Reconnection (Delinquent)	75.00	75.00	75.00
Reconnection (Delinquent and After Hours)	n/a	n/a	50.00
Meter Test	20.00	20.00	20.00
Deposit	*	*	*
Deposit Interest	6.00%	6.00%	**
Re-Establishment (With-in 12 Months)	**	**	***
NSF Check	15.00	15.00	15.00
Deferred Payment per annual	18.00%	18.00%	18.00%
Meter Re-Read	20.00	20.00	20.00
Late Charge per month	10.00	10.00	****

\* Per Commission Rules (R14-2-403.B)  
\*\* Per Commission Rule (R14-2.403.B-3)  
\*\*\* Months off system times the minimum (R14-2-403.D)  
\*\*\*\* 1.50 percent per month on the unpaid balance

**Typical Bill Analysis**  
**General Service 5/8-Inch Meter**

Company Proposed	Gallons	Present Rates	Proposed Rates	Dollar Increase	Percent Increase
Average Usage	5,509	\$ 30.12	\$ 74.89	\$ 44.77	148.64%
Median Usage	4,500	27.90	68.13	\$ 40.23	144.19%
<b>Staff Recommended</b>					
Average Usage	5,509	\$ 30.12	\$ 60.01	\$ 29.89	99.22%
Median Usage	4,500	27.90	54.92	\$ 27.02	96.85%

**Present & Proposed Rates (Without Taxes)**  
**General Service 3/4-Inch Meter**

Gallons	Present		Company Proposed		Staff Recommended	
	Rates	Increase	Rates	Increase	Rates	Increase
	\$ 18.00		\$ 44.78	148.78%	\$ 39.00	116.67%
1,000	20.20		49.78	146.44%	42.35	109.65%
2,000	22.40		54.78	144.55%	45.70	104.02%
3,000	24.60		59.78	143.01%	49.05	99.39%
4,000	26.80		64.78	141.72%	52.40	95.52%
5,000	29.00		71.48	146.48%	57.44	98.07%
4,500	27.90		68.13	144.19%	54.92	96.85%
6,000	31.20		78.18	150.58%	62.48	100.26%
7,000	33.40		84.88	154.13%	67.52	102.16%
8,000	35.60		91.58	157.25%	72.56	103.82%
9,000	37.80		98.28	160.00%	77.60	105.29%
5,509	30.12		74.89	148.64%	60.01	99.22%
10,000	40.00		104.98	162.45%	83.60	109.00%
11,000	42.20		111.68	164.64%	89.60	112.32%
12,000	44.40		118.38	166.62%	95.60	115.32%
13,000	46.60		125.08	168.41%	101.60	118.03%
14,000	48.80		131.78	170.04%	107.60	120.49%
15,000	51.00		138.48	171.53%	113.60	122.75%
16,000	53.20		145.18	172.89%	119.60	124.81%
17,000	55.40		151.88	174.15%	125.60	126.71%
18,000	57.60		158.58	175.31%	131.60	128.47%
19,000	59.80		165.28	176.39%	137.60	130.10%
20,000	62.00		171.98	177.39%	143.60	131.61%
25,000	73.00		205.48	181.48%	173.60	137.81%
30,000	84.00		238.98	184.50%	203.60	142.38%
35,000	95.00		272.48	186.82%	233.60	145.89%
40,000	106.00		305.98	188.66%	263.60	148.66%
45,000	117.00		339.48	190.15%	293.60	150.94%
50,000	128.00		372.98	191.39%	323.60	152.81%
75,000	183.00		540.48	195.34%	473.60	158.80%
100,000	238.00		707.98	197.47%	623.60	162.02%

**BEFORE THE ARIZONA CORPORATION COMMISSION**

JEFF HATCH-MILLER  
Chairman  
WILLIAM A. MUNDELL  
Commissioner  
MIKE GLEASON  
Commissioner  
KRISTIN K. MAYES  
Commissioner  
BARRY WONG  
Commissioner

IN THE MATTER OF THE APPLICATION OF ) DOCKET NO. W-02500A-06-0281  
GOODMAN WATER COMPANY FOR A )  
DETERMINATION OF THE CURRENT FAIR )  
VALUE OF ITS UTILITY PLANT AND )  
PROPERTY AND FOR INCREASES IN RATES )  
AND CHARGES FOR UTILITY SERVICE )  
BASED THEREON )

DIRECT  
TESTIMONY  
OF  
STEVEN P. IRVINE  
PUBLIC UTILITIES ANALYST III  
UTILITIES DIVISION  
ARIZONA CORPORATION COMMISSION

NOVEMBER 24, 2006

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**EXECUTIVE SUMMARY  
GOODMAN WATER COMPANY  
DOCKET NO. W-02500A-06-0281**

The direct testimony of Staff witness Steven P. Irvine addresses the following issues:

Capital Structure – Staff recommends that the Arizona Corporation Commission (“Commission”) adopt a capital structure for Goodman Water Company (“Goodman” or “Company”) for this proceeding consisting of 0 percent debt and 100 percent equity.

Cost of Equity – Staff’s 9.6 percent estimated return on equity (“ROE”) for the Company is based on cost of equity estimates for the sample companies ranging from 9.0 percent using the discounted cash flow method (“DCF”) to 10.1 percent using the capital asset pricing model (“CAPM”).

Overall Rate of Return – Staff recommends that the Commission adopt an overall rate of return (“ROR”) of 9.6 percent.

Mr. Bourassa’s Testimony – The Commission should reject the 10.5 percent ROE proposed by Goodman for the following reasons:

1. Mr. Bourassa’s DCF estimates rely exclusively on analysts’ forecasts. In addition, Mr. Bourassa’s DCF constant growth analysis does not include dividend growth.
2. Mr. Bourassa’s risk premium analysis is not market based and relies on forecasted interest rates for 10-year Treasuries for 2007-2008.

1 **I. INTRODUCTION**

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

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

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

8 A. In my capacity as a Public Utilities Analyst, I conduct studies to estimate the cost of  
9 equity capital, perform analyses of debt costs and compute the overall rate of return in rate  
10 proceedings. I also design rates to generate the revenue requirement in rate proceedings.

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

13 A. In 1994, I graduated from Arizona State University, receiving a Bachelor of Science  
14 degree in Business Marketing. In 1997, I received a Masters degree in Public  
15 Administration from Arizona State University. I began employment with the Commission  
16 in May of 2001 and have worked in the Utilities Division since September of 2002.

17  
18 **Q. What is the scope of your testimony in this case?**

19 A. My testimony provides Staff’s recommended rate of return for Goodman Water Company  
20 (“Goodman” or “Company”) in this case.

21  
22 **Summary of Testimony and Recommendations**

23 **Q. Briefly summarize how Staff’s cost of capital testimony is organized.**

24 A. Staff’s cost of capital testimony is presented in ten sections. Section I is this introduction.  
25 Section II discusses the concept of weighted average cost of capital (“WACC”). Section  
26 III presents the concept of capital structure and presents Staff’s recommended capital

1 structure for Goodman in this proceeding. Section IV discusses the concepts of return on  
2 equity (“ROE”) and risk. Section V presents the methods employed by Staff to estimate  
3 Goodman’s ROE. Section VI presents the findings of Staff’s ROE analysis. Section VII  
4 presents Staff’s final cost of equity estimates for Goodman. Section VIII presents Staff’s  
5 rate of return (“ROR”) recommendation for Goodman. Section IX presents Staff’s  
6 comments on the direct testimony of Goodman’s witness, Mr. Thomas J. Bourassa.  
7 Finally, Section X summarizes Staff’s recommendations.  
8

9 **Q. Briefly summarize Staff’s proposed capital structure, return on equity and overall**  
10 **rate of return for Goodman in this proceeding.**

11 A. Staff recommends a 9.6 percent overall ROR. Staff’s recommended ROR reflects a  
12 capital structure composed of 0 percent debt and 100 percent equity, a 9.6 percent ROE  
13 for the Company based on cost of equity estimates for the sample companies ranging from  
14 9.0 percent using the discounted cash flow method (“DCF”) to 10.1 percent using the  
15 capital asset pricing model (“CAPM”). Staff’s recommended 9.6 percent ROR is  
16 calculated in Schedule SPI-1.  
17

18 **Q. Briefly summarize Goodman’s proposed capital structure, return on equity and**  
19 **overall rate of return for this proceeding.**

20 A. The Company proposes a capital structure that consists of 100 percent equity and 0  
21 percent debt. Since the Company is not proposing any debt financing, its proposed ROR  
22 is equal to its ROE at 10.5 percent. Table I summarizes Goodman’s proposed capital  
23 structure and costs.  
24  
25  
26

1  
2  
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16

**Table 1**

	<b>Weight</b>	<b>Cost</b>	<b>Weighted Cost</b>
Long-term Debt	0.0%	0.0%	0.0%
Common Equity	100.0%	10.5%	<u>10.5%</u>
<b>Cost of Capital/ROR</b>			<b>10.5%</b>

**II. THE WEIGHTED AVERAGE COST OF CAPITAL**

**Q. Please explain the term cost of capital.**

A. Cost of capital is the opportunity cost of an investment. For an investor it is the rate of return that one would expect to earn in investments with risk similar to the investment being considered. One can invest in a company through a variety of securities such as stock, bonds, and debt. The cost of capital to a company issuing a variety of securities is an average of the expected returns on the securities the company has issued weighted according to the size of each security relative to the company's entire security portfolio. This total cost of capital is referred to as the weighted average cost of capital ("WACC"). While a company may determine the size of the dividends it pays or offer debt at particular rates at its own discretion, in a competitive market, the market determines the expected return on its equity capital. Equity investors are attracted to an equity investment when the expected returns are similar to those of other entities with similar risk. That is, the cost of equity capital is determined by the market.

1 **Q. What is the WACC formula?**

2 A. The WACC formula is as follows:

3 Equation 1

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

5

6

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

9

10 **Q. Please provide an example of a hypothetical capital structure demonstrating  
11 application of Equation 1.**

12 A. For purposes of this example, assume that an entity has a capital structure composed of 70  
13 percent debt and 30 percent equity. Also, assume that the embedded cost of debt is 7.0  
14 percent and the expected return on equity, i.e. the cost of equity, is 10.0 percent.  
15 Calculation of the WACC is as follows:

16 
$$\text{WACC} = (70\% * 7.0\%) + (30\% * 10.0\%)$$

17 
$$\text{WACC} = 4.90\% + 3.00\%$$

18 
$$\text{WACC} = 7.90\%$$

19

20 The weighted average cost of capital in this example is 7.90 percent. The entity in this  
21 example would need to earn an overall rate of return of 7.90 percent to cover its cost of  
22 capital.

**III. CAPITAL STRUCTURE****Background****Q. Please explain the capital structure concept.**

A. While WACC describes the average unit cost of capital employed from a company's various securities, capital structure describes the relative proportions of each type of security (capital leases, long-term debt, short-term debt, preferred stock, and common stock). As the proportion of the capital structure represented by fixed obligation financing increases (increased leverage), risk associated with the ability to meet financial obligations (financial risk) increases.

**Q. How is the capital structure for a given company described?**

A. A company's capital structure is described by simply stating the percentage of each component of the capital structure relative to the whole capital structure. The following is an example of a hypothetical capital structure. Assume that the capital structure for an entity that is financed by \$10,000 of capital leases, \$30,000 of long-term debt, \$5,000 of short-term debt, \$10,000 of preferred stock and \$45,000 of common stock. The capital structure for the company is shown in Table 2.

**Table 2**

Component			%
Capital Leases	\$10,000	(\$10,000/\$100,000)	10.0%
Long-Term Debt	\$30,000	(\$30,000/\$100,000)	30.0%
Short-Term Debt	\$5,000	(\$5,000/\$100,000)	5.0%
Preferred Stock	\$10,000	(\$10,000/\$100,000)	10.0%
Common Stock	\$45,000	(\$45,000/\$100,000)	45.0%
Total	\$100,000		100%

1           The capital structure in this example is composed of 10.0 percent capital leases, 30.0  
2           percent long-term debt, 5.0 percent short-term debt, 10.0 percent preferred stock and 45.0  
3           percent common stock.

4  
5           **Goodman's Capital Structure**

6           **Q.     What capital structure does Goodman propose?**

7           A.     The Company recommends a capital structure with 0 percent debt and 100 percent equity.  
8           Schedule D-1 of the application describes that stockholder's equity in the Company was  
9           \$1,372,377 during the test year and that there was no long term debt.

10  
11          **Q.     What capital structure does Staff recommend for Goodman?**

12          A.     Staff recommends a capital structure composed of 100 percent equity and 0 percent debt  
13          as shown in Schedules SPI-1.

14  
15          **Q.     How does Goodman's capital structure compare to capital structures of publicly  
16          traded water utilities?**

17          A.     The average capital structure of the six publicly traded water companies ("sample  
18          companies") is 51.4 percent debt and 48.6 percent equity. The capital structure for each of  
19          the sample companies is shown in Schedule SPI-3.

20  
21          **Q.     Does Staff discuss the matter of a cost of equity adjustment as it relates to capital  
22          structure differences between Goodman and the sample water companies?**

23          A.     Yes. This matter is discussed in Section VII, Final Cost of Equity Estimates for  
24          Goodman.

1 **IV. RETURN ON EQUITY**

2 **Background**

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

4 A. Cost of equity is the compensation that investors expect for bearing the risk of ownership  
5 of a stock. The return that investors expect for a given stock is equivalent to the expected  
6 returns of other firms with equivalent risk. Investors can expect a given stock's return to  
7 be similar to returns of other stocks with equivalent levels of risk as investors can simply  
8 select the other stocks as an alternative. Investors are likely to do so if there are other  
9 stocks available with similar levels of risk and higher returns. Cost of equity is therefore  
10 determined by the market given the prevailing market conditions.

11

12 **Q. Can the cost of equity for Goodman be determined by market data related to its**  
13 **stock and earnings?**

14 A. As Goodman's stock is not publicly traded, its cost of equity cannot be estimated directly.  
15 As stated previously, investors expect returns equivalent to the returns of stocks with  
16 equivalent risk. As a proxy for Goodman's own market data, Staff has estimated  
17 Goodman's cost of equity using market data from six publicly traded water utilities.

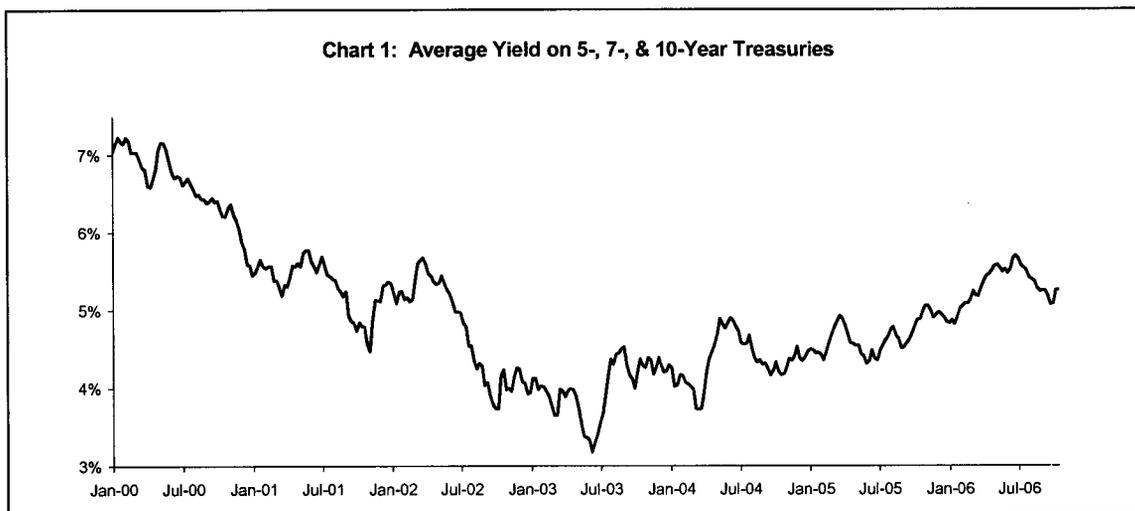
18

19 **Q. Do interest rates affect cost of equity?**

20 A. Yes. According to the CAPM, the direction of change in interest rates is an indicator of  
21 the direction of change in cost of equity. The CAPM is a market based model used for  
22 cost of capital estimation that Staff employs to estimate Goodman's cost of equity. The  
23 CAPM model is discussed in greater detail in Section V of this testimony.

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

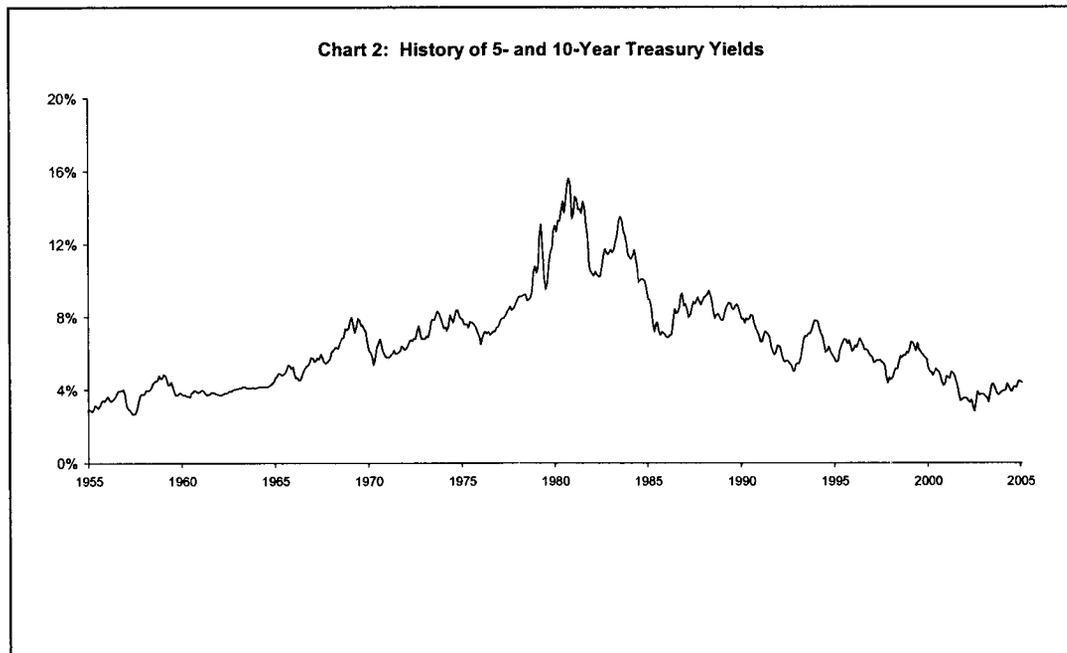
2 A. U.S. treasury rates from November 2000 to 2006 are shown in Chart 1. The chart shows  
3 that the rates in this timeframe generally declined until mid 2003 and have on average  
4 risen somewhat since that time.



Source: Federal Reserve

1 **Q. What has been the general trend in interest rates in the long-term?**

2 A. U.S. treasury rates from 1955 to present are shown in Chart 2. The chart demonstrates  
3 that in that period rates rose on average until the 1980's and have fallen on average since  
4 that time.



16 Source: Federal Reserve

17

18 **Q. What do these trends suggest for cost of equity?**

19 A. As mentioned previously, interest rates generally have a positive relationship with cost of  
20 capital. As a result, cost of equity has declined significantly in the past 25 years.

21

22 **Risk**

23 **Q. Please define risk as it relates to cost of capital.**

24 A. Risk is uncertainty that results from the variability of returns from an investment. Greater  
25 variability results in greater risk. Because investors are generally averse to risk,

1 investments with greater inherent risk must promise higher expected yields.<sup>1</sup> Risk can be  
2 separated into two components: market risk and non-market risk. Market risk can also be  
3 referred to as systematic or non-diversifiable risk. Non-market risk can also be referred to  
4 as unique or diversifiable risk.

5  
6 **Q. What is market risk?**

7 A. Market risk is risk which results from forces that affect the entire market. Examples of  
8 forces that contribute to market risk include but are not limited to: inflation, interest rates,  
9 general business cycles, international incidents, and war. Each of these forces impacts the  
10 entire market. An investor cannot eliminate market risk by holding a diverse portfolio as  
11 market risk affects all stocks. While market risk affects all stocks, the degree to which  
12 market risk affects an individual stock's returns varies. The sensitivity of a given stock's  
13 returns relative to the whole market is measured by the indicator Beta. Beta reflects both  
14 the business risk and financial risk of a firm. As Beta is a component of the CAPM  
15 model, it is discussed in greater detail in Section V of this testimony.

16  
17 **Q. What is business risk?**

18 A. Business risk is that risk which is associated with the fluctuation in earnings due to the  
19 basic nature of a firm's business. Companies in the same line of business experience the  
20 same business risk associated with earning cycles for that line of business. Business risk  
21 affects cost of equity.

22  
23 **Q. What is financial risk?**

24 A. Financial risk is the risk that results from a company's reliance on debt financing.  
25 Financial risk affects cost of equity. Firms whose capital is highly leveraged have greater

---

<sup>1</sup> Scott, David L. Wall Street Words, revised edition. Houghton Mifflin Company. Boston. 1988. p. 324.

1 exposure related to the ability to service debt. As leverage increases, risk also increases.  
2 This increase in risk results in an increase in cost of equity.

3

4 **Q. What is non-market risk?**

5 A. Non-market risk, or firm-specific risk, is risk that results from forces which are firm  
6 specific, or singular to a firm. Examples of forces that contribute to non-market risk  
7 include but are not limited to: strikes, lawsuits, failure of a product line, and loss of a  
8 client. Different firms experience their own unique, or non-market, risks. By holding a  
9 diverse portfolio an individual investor can eliminate non-market risk.

10

11 **Q. Do market and non-market risk affect cost of equity?**

12 A. Market risk does affect cost of equity. Because non-market risk is diversifiable, investors  
13 cannot expect to be compensated for non-market risk.

14

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

16 **Introduction**

17 **Q. Did Staff directly estimate Goodman's cost of equity?**

18 A. No. As Goodman is not a publicly traded company, financial metrics needed to directly  
19 estimate Goodman's cost of equity are not available. For this reason, Staff used market  
20 information from six publicly traded water companies as a proxy for the financial metrics  
21 needed to estimate Goodman's cost of equity. Data from the proxy companies is averaged  
22 in Staff's analysis. Relying on averaged data from a sample group as a proxy has the  
23 beneficial effect of reducing sample error associated with variance present at the instant in  
24 time from which the financial metrics are selected.

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

2 A. Staff's sample consisted of: American States Water, California Water, Connecticut Water  
3 Services, Middlesex Water, Aqua America, and SJW Corp. These companies were  
4 selected as they are publicly traded and a significant portion of their revenues come from  
5 regulated operations. Goodman's analysis is based on these same sample companies.

6  
7 **Q. What models did Staff implement to estimate Goodman's cost of equity?**

8 A. Staff's estimate of the cost of equity is based the DCF and the CAPM.

9  
10 **Q. Why did Staff choose to base its analysis on the DCF and CAPM?**

11 A. Staff chose these models as they are widely recognized market based models for  
12 estimating the cost of equity. Since the cost of equity is determined by the market, use of  
13 market based models is appropriate. These models are explained in the following sections  
14 of this testimony.

15  
16 **Discounted Cash Flow Model Analysis**

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

19 A. The DCF method of stock valuation is based on the theory that an investment's current  
20 value is equal the discounted sum of the future revenues generated from the investment.  
21 Professor Myron Gordon pioneered the use of the DCF method to estimate the cost of  
22 capital for a public utility in the 1960's. This model is widely used due to its theoretical  
23 merit and simplicity. The DCF formula calculates the cost of capital using expected  
24 dividends, market price, and a dividend growth rate. This process is applied to each of the  
25 sample companies and the results are averaged to determine an estimated cost of capital  
26 for the subject company.

1 **Q. Are alternative growth rate models used in Staff's application of the DCF?**

2 A. Yes. Staff uses two versions of the DCF. In one version, Staff uses a single continuous  
3 growth rate. This is referred to as the constant growth DCF. In the second version Staff  
4 uses a two-stage growth rate that assumes that dividend growth will change in the future.  
5 This second model is referred to as the multi-stage or non-constant growth DCF.

6  
7 **The Constant-Growth DCF**

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

9 A. The constant-growth DCF formula used in Staff's analysis is as follows:

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

10 This formula assumes that the company has a constant earnings retention rate and that its  
11 earnings will continue to grow at a single constant rate. According to this equation, a  
12 stock with a current market price of \$10 per share, an expected annual dividend of \$0.60  
13 per share and an expected dividend growth rate of 4.0 percent per year has a cost of equity  
14 of 10.0 percent. This is calculated as follows:  $(\$0.60/\$10 \text{ or } 6.0 \text{ percent}) + (4.0 \text{ percent}) =$   
15 10 percent.

16  
17 **Q. How did Staff select the dividend yield components  $D_1$  and  $P_0$  in the constant-growth  
18 DCF formula?**

19 A. Staff used the expected annual dividend<sup>2</sup> ( $D_1$ ) and stock price ( $P_0$ ) at the close of the  
20 market on November 1, 2006, as reported by *MSN Money*.

---

<sup>2</sup> *Value Line Summary & Index*. October 27, 2006

1 **Q. Why did Staff use the November 1, 2006 spot stock price rather than a historical**  
2 **average stock price to calculate the dividend yield component of the DCF formula?**

3 A. Current rather than historic spot price is used in order to be consistent with financial  
4 theory. According to the efficient market hypothesis, current stock prices reflect all  
5 available information. This includes investors' current expectations of future returns.  
6 Consequently, current stock price is the best indicator of those expectations. Use of a  
7 historical average of stock prices illogically discounts the most recent information in favor  
8 of less recent information. The latter is stale and is representative of underlying  
9 conditions that may have changed.

10

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

13 A. The growth component used by Staff is determined by averaging six different estimation  
14 methods. The results are shown in Schedule SPI-7. Staff calculated both historical and  
15 projected growth estimates on dividend-per-share ("DPS")<sup>3</sup>, earnings-per-share ("EPS")<sup>4</sup>  
16 and sustainable growth bases.

17

18 **Q. Why did Staff include EPS growth in estimation of the dividend growth component**  
19 **of the constant-growth DCF model?**

20 A. Historic and projected EPS are considered in the constant-growth DCF model as dividends  
21 are related to earnings. While dividend payouts are not necessarily determined by a given  
22 constant proportion to earnings, dividends cannot exceed earnings indefinitely. In the  
23 long term, dividend payouts are dependent on earnings.

---

<sup>3</sup> Derived from information provided by *Value Line*

<sup>4</sup> Derived from information provided by *Value Line*

1 **Q. How did Staff calculate historical DPS growth?**

2 A. Staff calculated historical DPS growth by averaging DPS growth of the sample water  
3 utilities from 1996 to 2005. These averages are shown on Schedule SPI-4. Staff's  
4 analysis indicates an average historical growth rate of 2.7 for the sample water utilities.

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

7 A. Staff averaged the projected DPS growth rates shown in *Value Line* for the sample water  
8 utilities. The average of the DPS projections is 5.0 percent as shown in SPI-4.

9  
10 **Q. How did Staff calculate the historical EPS growth rate?**

11 A. Staff calculated the historical EPS growth rate by averaging the EPS for the sample  
12 companies from 1996 to 2005. Staff excluded Connecticut Water's historical EPS growth  
13 rate from the average as it is negative 0.9 percent and negative growth is inconsistent with  
14 the DCF model. The historical average EPS is 4.2 percent as shown in SPI-4.

15  
16 **Q. How did Staff estimate the projected EPS growth?**

17 A. Staff averaged the projected EPS growth rates shown in *Value Line* for the sample water  
18 utilities. The average of the EPS projections is 7.9 percent as shown in SPI-4.

19 **Q. How did Staff calculate its historical and projected sustainable growth rates?**

20 A. Historical and projected sustainable growth rates are calculated by adding the respective  
21 retention growth rates (br) to stock financing growth rates (vs) as shown in the last two  
22 columns of SPI-5.

23  
24 **Q. What is retention growth?**

25 A. Retention growth is growth in dividends that results from retention of earnings. This  
26 concept is based on the theory that dividend growth will not be achieved unless the

1            company retains and reinvests some of its earnings. It is used in Staff's calculation of  
2            sustainable growth shown in SPI-5.

3

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

5            A.    Retention growth is the product of the retention ratio and the book/accounting return on  
6            equity. The formula is as follows:

7

Equation 3 :

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

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

8

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

11           A.    Staff calculated the historical retention rates by averaging the retention rates for the  
12           sample companies from 1996 to 2005. The historical average retention rate is 3.1 percent  
13           as shown in SPI-5.

14

15           **Q.    How did Staff determine projected retention growth rate (br) for the sample water**  
16           **utilities?**

17           A.    Staff averaged the projected retention growth rates for the period 2009 to 2011 shown in  
18           *Value Line* for the sample water utilities. The average of the retention rate projections is  
19           4.8 percent as shown in SPI-5.

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

3 A. The retention growth rate is a reasonable estimate of future dividend growth when the  
4 retention ratio is reasonably constant and the entity's market price to book value ("market-  
5 to-book ratio") is expected to be 1.0. The average retention ratio has been reasonably  
6 constant in recent years. However, the market-to-book ratio for the sample water utilities  
7 is 2.6, notably higher than 1.0, as shown in Schedule SPI-6.

8  
9 **Q. Is there any financial implication of a market-to-book ratio greater than 1.0?**

10 A. Yes. A market-to-book ratio greater than 1.0 implies that investors expect an entity to  
11 earn an accounting/book return on its equity that exceeds its cost of equity. The  
12 relationship between required returns and expected cash flows is readily observed in the  
13 fixed securities market. For example, assume an entity contemplating issuance of bonds  
14 with a face value of \$10 million at either 6 percent or 7 percent, and thus, paying annual  
15 interest of \$600,000 or \$700,000, respectively. Regardless of investors' required return on  
16 similar bonds, investors will be willing to pay more for the bonds if issued at 7 percent  
17 than if the bonds are issued at 6 percent. For example, if the current interest rate required  
18 by investors is 6 percent, then investors would bid \$10 million for the 6 percent bonds and  
19 more than \$10 million for the 7 percent bonds. Similarly, if equity investors require a 7  
20 percent return and expect an entity to earn accounting/book returns of 12 percent, the  
21 market will bid up the price of the entity's stock to provide the required return of 7  
22 percent.

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

3 A. Staff has assumed that investors expect the market-to-book ratio to remain greater than  
4 1.0. Given that, Staff has added a stock financing growth rate (vs) term to the retention  
5 ratio (br) term to calculate its historical and projected sustainable growth rates.

6  
7 **Q. Do the historical and projected sustainable growth rates Staff uses to develop its**  
8 **DCF cost of equity in this case include stock financing growth as an input?**

9 A. Yes.

10

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

12 A. Stock financing growth is the growth in an entity's dividends due to the sale of stock by  
13 that entity. Stock financing growth is a concept derived by Myron Gordon and discussed  
14 in his book *The Cost of Capital to a Public Utility*.<sup>5</sup> Stock financing growth is the product  
15 of the fraction of the funds raised from the sale of stock that accrues to existing  
16 shareholders (v) and the fraction resulting from dividing the funds raised from the sale of  
17 stock by the existing common equity(s).

---

<sup>5</sup> Gordon, Myron J. *The Cost of Capital to a Public Utility*, MSU Public Utilities Studies, Michigan, 1974. pp 31-35.

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

2 A. The stock financing growth rate formula is as follows:

3

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

4

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

6 A. Variable  $v$  is calculated as follows:

7

Equation 5 :

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

8

9 For example, assume that a share of stock has a \$40 book value and is selling for \$80.

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

11

$$v = 1 - \left( \frac{40}{80} \right)$$

12

In this example,  $v$  is equal to 0.50.

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

2 A. Variable s is calculated as follows:

3

4

Equation 6:

5

6

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

7

8

For example, assume that an entity has \$100 in existing equity, and it sells \$25 of stock.

9

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

$$s = \left( \frac{25}{100} \right)$$

10

In this example, s is equal to 25.0 percent.

11

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

13

A. A market-to-book ratio equal to 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.

14

15

16

17

18

19

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

21

A. A market-to-book ratio greater than 1.0 reflects that investors expect an entity to earn a book/accounting return on their equity investment greater than the cost of equity. Equation 5 shows that when the market-to-book ratio is greater than 1.0 the v term is also greater than zero. The excess by which new shares are issued and sold over book value per share

22

23

24

1 of outstanding stock is a contribution that accrues to existing stockholders in the form of a  
2 higher book value. The resulting higher book value leads to higher expected earnings and  
3 dividends. Continued growth from the vs term is dependent upon the continued issuance  
4 and sale of additional shares at a price that exceeds book value per share.

5  
6 **Q. What vs estimate did Staff calculate from its analysis of the sample water utilities?**

7 A. Staff estimated an average stock financing growth (vs) of 2.6 percent for the sample water  
8 utilities as shown in Schedule SPI-5.

9  
10 **Q. What would one expect to occur should a stock have a market-to-book ratio greater  
11 than 1.0 as a result of investors' expectations that earnings would exceed the cost of  
12 equity capital and the entity subsequently was authorized rates equal to its cost of  
13 equity capital?**

14 A. A reasonable expectation is for the market-to-book ratio to move toward 1.0.

15  
16 **Q. If the average market-to-book ratio of the sample water utilities falls to 1.0 due to  
17 authorized ROE's equaling the cost of equity capital, would Staff's inclusion of the vs  
18 term in its constant-growth DCF analysis result in an overestimate of its sustainable  
19 dividend growth rate and the resulting DCF ROE estimate?**

20 A. Yes. Inclusion of the vs term assumes that the market-to-book ratio continues to exceed  
21 1.0, and that the water utilities will continue to issue and sell stock at prices exceeding  
22 book value resulting in benefits for existing shareholders. If the market-to-book ratio  
23 declines to 1.0, the stock financing term is not necessary.

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

2 A. Based on the average earnings retention of the sample water companies, Staff's estimated  
3 historical sustainable growth rate is 5.7 percent. Staff's projected sustainable growth rate  
4 is 8.4 percent based on the retention growth rate projected by *Value Line*. Staff's  
5 estimates of the sustainable growth rate are shown in SPI-5 and SPI-7.

6  
7 **Q. What is Staff's expected infinite annual growth rate in dividends?**

8 A. Staff's expected infinite annual growth rate in dividends is 5.7 percent, the average of  
9 historical and projected dividends per share ("DPS"), earnings per share ("EPS"), and  
10 sustainable growth rate estimates. The calculation is shown in SPI-7.

11

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

13 A. Staff's constant-growth DCF estimate is 8.5 percent as shown in Schedule SPI-2.

14

15 **Multi-Stage DCF**

16 **Q. Why did Staff include the multi-stage DCF in its estimate of Goodman's cost of**  
17 **equity?**

18 A. Staff used the multi-stage DCF to consider the assumption that dividends may not grow at  
19 a constant rate.

20

21 **Q. Please describe the multi-stage DCF used in Staff's analysis?**

22 A. As mentioned previously, the multi-stage DCF uses two stages of growth. The first stage  
23 is four years followed by the second stage. A separate growth rate is applied to each  
24 stage.

25

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

2 A. The multi-stage DCF formula is shown in the following equation:  
3

Equation 7:

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

Where:  $P_0$  = current stock price  
 $D_t$  = dividends expected during stage 1  
 $K$  = cost of equity  
 $n$  = years of non-constant growth  
 $D_n$  = dividend expected in year n  
 $g_n$  = constant rate of growth expected after year n

4

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

6 A. First, Staff projected future dividends for each of the sample water utilities using the near-  
7 term and long-term growth rate periods discussed previously. Second, Staff calculated the  
8 rate (cost of equity) which equates the present value of the forecasted dividends to the  
9 current stock price for each of the sample water utilities. Finally, Staff calculated an  
10 average of the individual sample companies' cost of equity estimates.

11

12 **Q. How did Staff calculate growth rate for the first stage of the multi-stage DCF?**

13 A. The growth rate for the first stage is based on *Value Line's* projected dividends for the  
14 next twelve months, when available, and on the average dividend growth rate calculated in  
15 Staff's constant DCF analysis for the remainder of the stage.

1 **Q. How did Staff estimate the growth rate for the second stage of the multi-stage DCF**  
2 **model?**

3 A. Staff calculated the arithmetic mean of growth in GDP from 1929 to 2005.<sup>6</sup> Use of the  
4 historic arithmetic mean of GDP assumes that dividend growth for the utility will be  
5 similar to the historical growth in the overall economy.

6  
7 **Q. What is the historical GDP growth rate that Staff used in stage-2 growth?**

8 A. The arithmetic mean of growth in GDP used in stage-2 is 6.8 percent as shown in SPI-8.

9  
10 **Q. What is Staff's multi-stage DCF estimate?**

11 A. Staff's multi-stage DCF estimate is 9.5 percent as shown in Schedule SPI-8.

12  
13 **Q. What is Staff's overall DCF estimate?**

14 A. Staff's overall DCF estimate is 9.0 percent. Staff calculated the overall DCF estimate by  
15 averaging the constant growth DCF (8.5 percent) and multi-stage DCF (9.5 percent)  
16 estimates as shown in Schedule SPI-2.

17  
18 **Capital Asset Pricing Model**

19 **Q. Please describe the capital asset pricing model and the premise it is based on.**

20 A. The CAPM is a model used in pricing of securities. The CAPM formula is based on the  
21 premise that the return on a security is equal to the sum of a risk free rate and a risk  
22 premium. The risk free rate portion of the formula compensates an investor for the risk  
23 inherent in investing in the market. The risk premium portion of the formula compensates  
24 an investor for taking on additional risk. The model illustrates the relationship between  
25 risk and expected return. It is useful in establishing expected returns for a security given

---

<sup>6</sup> www.bea.doc.gov

1 its risk and the returns of other securities of similar risk. In 1990, Professors Harry  
2 Markowitz, William Sharpe, and Merton Miller earned the Nobel Prize in Economic  
3 Sciences for their contribution to the development of the CAPM. The CAPM assumes  
4 that investors hold portfolios sufficiently diversified to eliminate any non-systematic  
5 (unique) risk.<sup>7</sup>

6  
7 **Q. What is the mathematical formula for the CAPM?**

8 **A.** The mathematical formula for the CAPM is:

9  
Equation 8:

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

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

10  
11 The equation shows that the expected return (K) on a security is equal to the risk-free  
12 interest rate ( $R_f$ ) plus the product of the market risk premium (“Rp”) ( $R_m - R_f$ ) multiplied  
13 by beta ( $\beta$ ) where beta represents the risk of the investment relative to the market.

14  
15 **Q. What is the risk free rate?**

16 **A.** The risk free rate is the rate of return of an investment with no risk.

17  
18 **Q. What rate does Staff use to estimate the risk free rate?**

19 **A.** Staff relies on the U.S. Treasury security spot rates as an estimate for the risk free rate.

---

<sup>7</sup> Brigham, Eugene F. and Ehrhardt, Michael C. Financial Management Theory and Practice 11<sup>th</sup> Edition. 2005. Thomson South-Western. United States. P. 182.

1 **Q. Why are U.S. Treasury security spot rates an appropriate measure of the risk-free**  
2 **rate?**

3 A. U.S. Treasury securities are generally considered risk free as they are issued and backed  
4 by the U.S. Government. U.S. Treasuries also have the benefit of being verifiable,  
5 objective and readily available.

6  
7 **Q. What does beta measure?**

8 A. Beta represents the correlation between price variation of an individual security and the  
9 price variation of the market. Beta is a measure of systematic (market) risk. Systematic  
10 risk, as opposed to unsystematic (unique) risk, cannot be eliminated by diversification.  
11 Investors who hold diverse portfolios can eliminate non-systematic risk. Therefore only  
12 systematic risk affects the cost of equity.

13

14 **Q. How is the Beta measurement expressed?**

15 A. Beta is expressed as a numeral. Beta for the market is 1.0. A security with a beta greater  
16 than 1.0 is riskier than the market, and a security with a beta less than 1.0 is less risky than  
17 the market. The degree to which a given security's beta is greater or less than 1.0  
18 indicates its relatively greater or lesser risk to the market.

19

20 **Q. How did Staff estimate Goodman's beta?**

21 A. Staff's DCF analysis for Goodman uses a beta equal to the average of the betas for the  
22 sample companies. Staff used the betas published in *Value Line* on October 27, 2006.  
23 The average of the betas is 0.82. Schedule SPI-6 shows the *Value Line* betas and their  
24 average.

1 **Q. How did the average of the sample water utilities beta's compare to the market's**  
2 **Beta?**

3 A. The average beta of the six sample water utilities is 0.82. This conclusion is based on  
4 averaging beta's published in *Value Line* on October 27, 2006. As beta for the entire  
5 market is 1.0, the average of the sample companies' Betas is less than the market's beta.

6  
7 **Q. What is the implication of a 0.82 beta for the average of sample water utilities**  
8 **compared to a 1.0 beta for the market?**

9 A. The implication is that the cost of equity for a regulated water utility is below the average  
10 required return on the market.

11

12 **Q. Please describe the expected market risk premium ( $R_m - R_f$ ).**

13 A. Conceptually, it is the return that an investor expects to receive to compensate for market  
14 risk. Mathematically speaking, the expected market risk premium is the expected return  
15 on a market portfolio minus the risk free rate.

16

17 **Q. How many risk premium CAPM analyses did Staff conduct in its analysis of**  
18 **Goodman's cost of equity capital?**

19 A. Staff conducted two risk premium CAPM analyses: current market risk premium and  
20 historic market risk premium. Staff averaged the results of the two risk premium analyses  
21 to calculate a CAPM cost of equity estimate as shown in SPI-2.

22

### 23 **Historic Market Risk Premium**

24 **Q. What did Staff use for the historic market risk premium?**

25 A. Staff referred to the *Ibbotson Associates' Stocks, Bonds, Bills, and Inflation 2005*  
26 *Yearbook* and selected Ibbotson's measure of the average premium of the market over

1 intermediate treasury securities since 1926. Ibbotson Associates calculates the historical  
2 risk premium by averaging the historical arithmetic differences between the S&P 500 and  
3 the intermediate-term government bond income returns. Staff's historic market risk  
4 premium is 7.5 percent as shown in Schedule SPI-2.  
5

### 6 **Current Market Risk Premium**

7 **Q. How did Staff establish the current market risk premium?**

8 A. Staff solved equation 8 for the market risk premium using a DCF derived expected return  
9 (K) of 10.48 percent based on *Value Line*'s current projections for the dividend yield (1.7  
10 percent) and growth (8.78 percent<sup>8</sup>) for all dividend paying stocks; the 30-year Treasury  
11 note rate (4.68 percent) for the risk free rate ( $R_f$ ); and the market beta of 1.0. Staff  
12 calculated a current market risk premium of 5.80 percent.<sup>9</sup>  
13

14 **Q. What are the results of Staff's historical and current market risk premium CAPM**  
15 **analyses?**

16 A. Staff's cost of equity estimate is 10.7 percent using the historical market risk premium  
17 CAPM and 9.4 percent using current market risk premium CAPM.  
18

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

20 A. Staff's overall CAPM estimate is 10.1 percent which is the average of the historical  
21 market risk premium CAPM and the current market risk premium CAPM estimates as  
22 shown in Schedule SPI-2.  
23

---

<sup>8</sup> 3 to 5 year growth = 40%.  $1.4^{0.25} = 1.0878$ ;  $(1.0878 - 1.0 = .0878$  or 8.78%)

<sup>9</sup> If  $10.48 = 4.68\% + 1(R_m - R_f)$ , then,  $(R_m - R_f) = 5.8\%$

1 **VI. SUMMARY OF STAFF'S COST OF EQUITY ANALYSIS**

2 **Q. What is Staff's constant-growth DCF analysis estimate of the cost of equity for the**  
3 **sample water companies?**

4 A. Staff's constant-growth DCF estimate of the cost of equity for the sample water utilities is  
5 8.5 percent. The results are shown in Schedule SPI-2. A summary of the analysis is as  
6 follows:

7  $k = \text{Dividend yield} + \text{Expected dividend growth}$

8  $k = 2.8\% + 5.7\%$

9  $k = 8.5\%$

10

11 **Q. What is Staff's multi-stage DCF analysis estimate of the cost of equity for the sample**  
12 **water companies?**

13 A. Staff's multi-stage DCF estimate of the cost of equity for the sample water utilities is 9.5  
14 percent. The result is presented in Schedule SPI-2. A summary of the analysis is as  
15 follows:

16

17	<b>Company</b>	<b>Equity Cost</b>
18		<b>Estimate (k)</b>
19	American States Water	9.0%
20	California Water	9.9%
21	Aqua America	8.7%
22	Connecticut Water	10.6%
23	Middlesex Water	10.5%
24	SJW Corp	<u>8.5%</u>
25	<b>Average</b>	<b>9.5%</b>

26

27 **Q. What is Staff's overall DCF estimate of the cost of equity?**

28 A. Staff's overall DCF estimate of the cost of equity for the sample utilities is 9.0 percent.  
29 This estimate is calculated by averaging Staff's constant growth and multi-stage DCF  
30 estimates as shown in Schedule SPI-2.

1 **Q. What is Staff's CAPM estimate of the cost of equity for the sample companies using**  
2 **the historical market risk premium?**

3 A. Staff's CAPM estimate of the cost of equity for the sample companies using the historical  
4 market risk premium is 10.7 percent. The results are shown in Schedule SPI-2. A  
5 summary of the analysis is as follows:<sup>10</sup>

6  
7  $k = \text{historical risk free rate} + \text{beta} * \text{historical market risk premium}$   
8  $k = 4.5\% + 0.82 * 7.5\%$   
9  $k = 4.5\% + 6.2\%$   
10  $k = 10.7\%$

11  
12 **Q. What is Staff's CAPM estimate of the cost of equity for the sample companies using**  
13 **the current market risk premium?**

14 A. Staff's CAPM estimate of the cost of equity for the sample companies using the current  
15 market risk premium is 9.4 percent. The results are shown in Schedule SPI-2. A  
16 summary of the analysis is as follows:<sup>11</sup>

17  
18  $k = \text{current risk free rate} + \text{Beta} * \text{current market risk premium}$   
19  $k = 4.7\% + 0.82 * 5.8\%$   
20  $k = 4.7\% + 4.7\%$   
21  $k = 9.4\%$

22  
23 **Q. What is Staff's overall CAPM estimate of the cost of equity for the sample utilities?**

24 A. Staff's overall CAPM estimate for the sample utilities is 10.1 percent. This estimate is  
25 calculated by averaging the historical market risk premium CAPM and the current market  
26 risk premium CAPM estimates for the sample companies as shown in Schedule SPI-2.

---

<sup>10</sup> Rounded Figures

<sup>11</sup> Rounded Figures

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

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

3  
4

**Table 2**

<b>Method</b>	<b>Estimate</b>
Average DCF Estimate	9.0%
Average CAPM Estimate	10.1%
<b>Overall Average</b>	<b>9.6%</b>

5 Staff's average estimate of the cost of equity of the sample water utilities is 9.6 percent.

6

7 **VII. FINAL COST OF EQUITY ESTIMATES FOR GOODMAN**

8 **Q. Does capital structure influence the cost of equity?**

9 A. Yes. Capital structure influences cost of capital. Companies with higher debt leverage  
10 have higher financial risk. Investors require a higher rate of return to compensate for  
11 greater risk. Accordingly, when an applicant's capital structure is different than the  
12 average of the sample companies an adjustment to the cost of equity may be appropriate to  
13 reflect the difference in financial risk.

14

15 **Q. Does Goodman's capital structure differ from the average capital structure of the**  
16 **sample companies?**

17 A. Yes. Schedule D-2 of the application indicates that Goodman has no debt. This debt free  
18 capital structure reflects less financial risk than the average of the sample companies. The  
19 sample companies average 51.4 percent debt and 48.6 percent equity.

20

21 **Q. Does Staff recommend an adjustment to recognize the difference in financial risk**  
22 **between Goodman and the sample companies?**

23 A. No. Staff finds that Goodman's capital structure is appropriate. The Company is  
24 privately held and has no access to capital markets. An entity that lacks access to the

1 capital markets has comparatively less ability to manage its capital structure efficiently  
2 than an entity with access to the capital markets. Therefore, an entity lacking access to the  
3 capital markets should appropriately maintain a higher level of equity to maintain  
4 financial health. A downward adjustment to return on equity would serve as a  
5 disincentive for the Company to maintain a capital structure that is appropriate for its  
6 circumstances.

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

9 A. Staff recommends an ROE of 9.6 percent.

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

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

13 A. Staff recommends a 9.6 percent ROR for Goodman. Staff's recommendation is based on  
14 a capital structure composed of 0 percent debt and 100 percent equity and a 9.6 percent  
15 ROE as shown in Schedule SPI-1 and Table 3 below.

16  
17 **Table 3**

	<b>Weight Cost</b>		<b>Weighted Cost</b>
Long-term Debt	0%	0%	0%
Common Equity	100%	9.6%	9.6%
<b>Cost of Capital/ROR</b>			<b>9.6%</b>

18  
19 **IX. STAFF RESPONSE TO COMPANY'S COST OF CAPITAL WITNESS MR.**  
20 **THOMAS J. BOURASSA**

21 **Q. Please summarize Mr. Bourassa's cost of capital analyses and recommendations.**

22 A. Mr. Bourassa's cost of capital recommendation is based on use of both constant growth  
23 and multi-stage growth DCF models. In addition to these models, he also performs a

1 bond-yield plus risk premium analysis and a comparative earning analysis to support the  
2 results of his conclusions from his DCF analyses. Mr. Bourassa asserts that Goodman  
3 faces additional risks not captured by the market models, such as financial risk and  
4 Arizona's use of historic test years and limited out of period adjustments.<sup>12</sup> Mr. Bourassa  
5 concludes that a 10.5 percent ROE presents a reasonable balance resulting from his  
6 analyses.

7  
8 **Constant-Growth DCF**

9 **Q. What are Staff's comments on Mr. Bourassa's sole reliance on analysts' forecasts to**  
10 **estimate DPS growth in his constant growth DCF estimates?**

11 A. Staff finds Mr. Bourassa's sole reliance on analysts' forecasts to be inappropriate for two  
12 reasons. First, sole reliance on analysts' forecasts of earnings growth to forecast DPS is  
13 inappropriate because it assumes that investors do not independently consider other  
14 relevant information such as past dividend and earnings growth. Second, analysts'  
15 forecasts are known to be overly optimistic. Sole use of analysts' forecasts to calculate  
16 the growth in dividends (g) results in inflated growth estimations, and consequently,  
17 inflated cost of equity estimates.

18  
19 **Q. Does Staff have any comment regarding Mr. Bourassa's statement "To the extent**  
20 **that past results provide useful indications of future growth prospects, analysts'**  
21 **forecasts would already incorporate that information ... Any further recognition of**  
22 **the past will double count what has already occurred."**<sup>13</sup>

23 A. Analysts' forecasts cannot be used as a proxy for investors' expectations for growth.  
24 Investors have at their disposal both analysts' forecasts and historic growth data. While

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<sup>12</sup> Direct Testimony of Thomas J. Bourassa, Goodman Water Company. Company, Docket no. W-02500A-06-0281, page 26 of 48.

<sup>13</sup> Direct Testimony of Thomas J. Bourassa, Goodman Water Company. Company, Docket no. W-02500A-06-0281,, page 37 of 48.

1 analysts may have considered historical measures of growth, it is reasonable to assume  
2 that investors rely to some extent on past growth as well. This calls for consideration of  
3 both analysts' forecasts as well as past growth. Should the entire investment community  
4 form their growth expectations based on both analysts' forecasts *and* their own assessment  
5 of historic data, their collective conclusions will form the market's expectation for growth  
6 and subsequently for cost of capital. Further, investor consideration of historical data does  
7 not necessarily result in a double count of the information. Investors may assess the  
8 historical data differently than analysts and modify analysts' projections to reflect their  
9 own analyses. The market will reflect investors' expectations regardless of whether any  
10 duplicate consideration of historical data takes place in their analyses.

11  
12 **Q. Does Staff have any comments on the study conducted by David A. Gordon, Myron**  
13 **J. Gordon and Lawrence I. Gould<sup>14</sup> that Mr. Bourassa asserts supports exclusive use**  
14 **of analysts' forecasts in the DCF model?**

15 A. Yes. The article cited by Mr. Bourassa does not conclude that investors ignore past  
16 growth when pricing stocks. The article describes that the Gordon and Gould study  
17 considered three methods of growth estimation that rely on historical data. The article  
18 states that these three methods are "popular/or attractive methods" and "have been widely  
19 used in ... research on stock valuation models."<sup>15</sup> The article also says, "There is a wide  
20 variety of acceptable methods for using historical data to estimate future growth."<sup>16</sup> The  
21 article does not support the sole use of analysts' forecast in the DCF.

---

<sup>14</sup> Gordon, David A., Myron J. Gordon, Lawrence I. Gould. "Choice Among Methods of Estimating Share Yield." *The Journal of Portfolio Management*. Spring 1989. pp. 50-55. (Bourassa's direct testimony, page 37, footnote.)

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

1 **Q. Does Staff have any further evidence that Professor Gordon does not recommend**  
2 **exclusive reliance on analysts' forecasts as the measure of growth in the DCF model?**

3 A. Yes. Nine years after publishing his study Professor Gordon addressed the matter at the  
4 30<sup>th</sup> Financial Forum of the Society of Utility and Regulatory Financial Analysts. In his  
5 address he stated:

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

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

21  
22 Simply stated, if Professor Gordon were to use these questionable methods of estimating  
23 growth rates, he would temper the typically higher analysts' forecasts with the typically  
24 lower GNP growth rate by averaging the two.

---

<sup>17</sup> Gordon, M. J. Keynote Address at the 30<sup>th</sup> Financial Forum of the Society of Utility and Regulatory Financial Analysts. May 8, 1998. Transparency 3.

1 **Q. Are there other experts who offer views that suggest sole reliance on analysts' growth**  
2 **forecasts is inadvisable?**

3 A. Yes. Other financial experts have commented on the optimism in analysts' growth  
4 forecasts.<sup>18</sup> Several studies have been conducted to measure this phenomenon. In  
5 *Contrarian Investment Strategies: The Next Generation* David Breman cites a study that  
6 found that *Value Line* analysts overestimated forecasts by 9 percent annually, on average  
7 for the 1987 – 1989 period.

8  
9 Burton Malkiel of Princeton University studied one-year and five-year forecasts made by  
10 respected analysts. His study found that when compared to actual earnings, several naïve  
11 forecasting models, including growth of national income, proved to be more accurate.  
12 The following excerpt from Professor Malkiel's book *A Random Walk Down Wall Street*  
13 discusses the results of his study:

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

22 The analysts fought back gamely. They complained that it was  
23 unfair to judge their performance on a wide cross section of  
24 industries, because earnings for high-tech firms and various  
25 "cyclical" companies are notoriously hard to forecast. "*Try us on*  
26 *utilities," one analyst confidently asserted. At the time they were*  
27 *considered among the most stable group of companies because of*  
28 *government regulation. So we tried it and they didn't like it. Even*

---

<sup>18</sup> See Seigel, Jeremy J. *Stocks for the Long Run*. 2002. McGraw-Hill. New York. p. 100. Dreman, David. *Contrarian Investment Strategies: The Next Generation*. 1998. Simon & Schuster. New York. pp. 97-98. Malkiel, Burton G. *A Random Walk Down Wall Street*. 2003. W.W. Norton & Co. New York. p. 175.

1                    *the forecasts for the stable utilities were far off the mark.*<sup>19</sup>  
2                    (Emphasis added)

3  
4    **Q.    Is the investment community aware that analysts' forecasts are inflated or overly**  
5           **optimistic?**

6    A.    Yes. Problems related to analysts' forecasts are cited in a number of financial articles  
7           widely available to investors such as *The Wall Street Journal*.<sup>20</sup> Logically, investors who  
8           are made aware of the bias in analysts' forecasts will not rely solely on those forecasts in  
9           decision making. Such investors are more likely to rely on other methods of growth  
10          assessment or a combination of methods.

11  
12   **Q.    Does Mr. Bourassa's own testimony provide comment contradicting the propriety of**  
13          **sole reliance on analysts' forecasts to estimate dividend growth?**

14   A.    Yes. Mr. Bourassa's testimony (P. 30, lines 26 and 27) describes that an advantage of the  
15          comparable earnings approach is that it is easy to calculate and the amount of subjective  
16          judgment required is minimal. In this statement Mr. Bourassa correctly indicates that  
17          minimizing subjective judgment in cost of equity analysis is an advantage. Analysts'  
18          projections are inherently subjective and prone to error. Accordingly, they should not be  
19          relied upon solely in growth estimation.

20  

---

<sup>19</sup> Malkiel, Burton G. *A Random Walk Down Wall Street*. 2003. W.W. Norton & Co. New York. p. 175

<sup>20</sup> See Smith, Randall & Craig, Suzanne. "Big Firms Had Research Ploy: Quiet Payments Among Rivals." *The Wall Street Journal*. April 30, 2003. Brown, Ken. "Analysts: Still Coming Up Rosy." *The Wall Street Journal*. January 27, 2003. p. C1. Karmin, Craig. "Profit Forecasts Become Anybody's Guess." *The Wall Street Journal*. January 21, 2003. p. C1. Gasparino, Charles. "Merrill Lynch Investigation Widens." *The Wall Street Journal*. April 11, 2002. p. C4. Elstein, Aaron. "Earnings Estimates Are All Over the Map." *The Wall Street Journal*. August 2, 2001. p. C1. Dreman, David. "Don't Count on those Earnings Forecasts." *Forbes*. January 26, 1998. p. 110. Coggan, Philip. "Optimism skews predictions EQUITIES: Data demonstrate that corporate performance reverts to the mean, writes Philip Coggan." *Financial Times Limited*. April 24, 2004. p. 12. Thomas, Joe. "Too Good to be True." *Financial Times Business Limited*. September 3, 2004. Boselovic, Len. "Heard Off the Street." *Pittsburgh Post-Gazette*. March 7, 2005. BUSINESS, Pg.B-1. Jagow, Scott. Marketplace Morning Report (radio program). Minnesota Public Radio. October 20, 2005.

1 **Q. What are Staff's comments to Mr. Bourassa's testimony (P. 32, lines 12 and 13) that**  
2 **states, "In the final analysis ROE estimates are subjective and should be based on**  
3 **sound, informed judgment" given that he previously identified minimizing**  
4 **subjectivity as an advantage in cost of equity models?**

5 A. The subjectivity inherent in growth estimation can be reduced by inclusion of historic  
6 growth data that is factual as opposed to sole reliance on perceptions.

7  
8 **Q. Does Mr. Bourassa make other subjective choices in his cost of equity analysis that**  
9 **unnecessarily reduce its objectivity?**

10 A. Yes. Mr. Bourassa's testimony (P. 37, lines 22 though 34) describes that he has not used  
11 forecasts of dividend growth in his DCF model as the average annual forecast of dividend  
12 growth is very low. The omission of such data results in exclusion of publicly accessible  
13 data which the investment community may consider in forming its growth expectations.  
14 Mr. Bourassa apparently believes that forecasts of dividend growth are appropriate  
15 considerations for cost of equity analysis but excluded them, therefore, swaying the results  
16 of his cost of equity estimation.

17

18 **Q. Should DPS growth be included in a DCF analysis?**

19 A. Yes. The present value of a stock is equal to the present value of all future dividends  
20 rather than the present value of all future earnings. This is the case as not all earnings are  
21 dispersed as dividends. On this matter, Professor Jeremy Siegel of the Wharton School of  
22 Finance said:

23

24 Note that the price of the stock is always equal to the present value  
25 of all future *dividends* and not the present value of future earnings.  
26 Earnings not paid to investors can have value only if they are paid  
27 as dividends or other cash disbursements at a later date. Valuing

1 stock as the present discounted value of future earnings is  
2 manifestly wrong and greatly overstates the value of the firm.<sup>21</sup>

3  
4 **Multi-Stage DCF**

5 **Q. What are Staff's comments on Mr. Bourassa's sole reliance on forecasted earnings**  
6 **growth for the near-term ("Stage - 1 growth") in his multi-stage DCF?**

7 A. It is not likely that investors rely solely on forecasted earnings growth and therefore his  
8 conclusions are not likely to reflect the market's expectations. Investors have a variety of  
9 methods available to them to assess growth. Alternatives include historic growth which is  
10 objective rather than subjective. Additionally, as stated previously, analysts' forecasts are  
11 known to be inflated or overly optimistic.

12  
13 **Risk Premium**

14 **Q. Please describe Mr. Bourassa's risk premium analysis.**

15 A. Mr. Bourassa computed the average risk premium for (1) actual returns for the ten years  
16 1995 to 2004 and (2) authorized returns for the ten years 1996 to 2006 compared to the  
17 10-year Treasury rate on Goodman's proxies. He then added the average risk premium for  
18 each method to the forecasted interest rates for 10-year Treasuries for 2007-2008.

19  
20 **Q. What are Staff's comments on Mr. Bourassa's risk premium method for estimation**  
21 **of cost of equity?**

22 A. This analysis is based on actual returns for his sample of water companies. This analysis  
23 is not market based as the cost of equity is determined by the market and not by actual or  
24 authorized returns. The analysis also relies on forecasts for interest on 10-year Treasuries.  
25 Analysts who forecast future interest rates have no more information upon which to  
26 project future interest rates than what is reflected in the current rate.

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<sup>21</sup> Seigel, Jeremy J. Stocks for the Long Run. 2002. McGraw-Hill. New York. P. 93.

1 Nancy L. Jacob of the University of Washington and R. Richardson Pettit of the  
2 University of Houston note the following:

3  
4 While we know something about many of the factors that  
5 determine interest rates (money supply, the demand for loanable  
6 funds, etc.) little evidence exists to suggest these factors can be  
7 predicted with enough accuracy to successfully predict the rates.<sup>22</sup>  
8

9 **Q. What is Staff's comment in regard to Mr. Bourassa's statement which explains that**  
10 **he selected the forecast for interest rates for 2007 – 2008 as that is the period in**  
11 **which Goodman's rates will be in effect?**<sup>23</sup>

12 A. Irrespective of the timing, it remains that it is a faulty assumption that interest rates can be  
13 predicted.  
14

15 **Comparative Earnings**

16 **Q. Please provide a description of Mr. Bourassa's comparative earnings analysis.**

17 A. In his comparative earnings analysis Mr. Bourassa compares the results of his DCF and  
18 risk premium methods to the actual and authorized returns reported in *AUS Utility Reports*  
19 and to *Value Line's* forecasts of the composite equity return for the water utility industry.  
20

21 **Q. What are Staff's comments on this method?**

22 A. Again, as with his risk premium analysis, Mr. Bourassa relies on actual and authorized  
23 returns. As mentioned previously, actual and authorized returns are not market based.  
24 The cost of equity is determined by the market; hence, actual and authorized returns are  
25 not reliable indicators of the cost of equity. These methods are not consistent with modern  
26 financial theory. In regard to reliance on *Value Line* forecasts for equity return for the

---

<sup>22</sup> Jacob, Nancy L., R. Richardson Pettit. *Investments*. Irwin. Homewood, Ill. 1988. p. 499.

<sup>23</sup> Direct Testimony of Thomas J. Bourassa, Goodman Water Company. Company, Docket no. W-02500A-06-0281,, page 41 of 48.

1 water utility industry, Staff would again note that analyst's forecasts are known to be  
2 inflated or overly optimistic.

3  
4 **Unique Risks**

5 **Q. What is Staff's response to Mr. Bourassa's assertion that the market data provided**  
6 **by the water utility sample does not capture all of the market risks of Goodman**  
7 **because Arizona rate regulation requires use of historical test years and recognizes**  
8 **limited out of period adjustments?**<sup>24</sup>

9 A. The risk examples cited by Mr. Bourassa are examples of unique risks. Use of a historical  
10 test year is a unique risk and so is use of a future test year. Existence of unique risk does  
11 not necessarily indicate that a company has more total risk than others as all companies  
12 have their own set of unique risks. Moreover, the market does not reward for unique risk  
13 as it can be diversified away.

14  
15 **Q. What is Staff's response to Mr. Bourassa's assertion that a good argument can be**  
16 **made that Goodman is not comparable to the six publicly traded water utilities in the**  
17 **same group as a result of size differences?**<sup>25</sup>

18 A. The Commission has previously ruled that firm size does not warrant recognition of a risk  
19 premium. In Decision No. 64727, dated April 17, 2002, for Black Mountain Gas, the  
20 Commission agreed with Staff that "the 'firm size' phenomenon' does not exist for  
21 regulated utilities, and that therefore there is no need to adjust for risk for small firm size  
22 in utility rate regulation." Decision No. 64282, dated December 28, 2001, states, "We do  
23 not agree with the Company's proposal to assign a risk premium to Arizona Water based  
24 on its size relative to the other publicly traded water utilities ..."

---

<sup>24</sup> Direct Testimony of Thomas J. Bourassa, Goodman Water Company. Company, Docket no. W-02500A-06-0281,, page 26 of 48.

<sup>25</sup> Direct Testimony of Thomas J. Bourassa, Goodman Water Company. Company, Docket no. W-02500A-06-0281,, page 28 of 48.

1 **CAPM**

2 **Q. What is Staff's comment regarding Mr. Bourassa's criticism of the CAPM?**

3 A. Mr. Bourassa asserts that the CAPM has questionable assumptions that underlie the model  
4 that have detracted from its practical application.<sup>26</sup> The CAPM, like all other models for  
5 estimating the cost of equity, has limitations. If all models exhibiting limitations were  
6 eliminated, no models would be acceptable. The CAPM has a particularly beneficial  
7 quality that makes it a preferable model. It is market based. In *The Cost of Capital – A*  
8 *Practitioner's Guide*, David Parcell indicates that, "It (CAPM) has widespread use in the  
9 investment community, particularly by portfolio managers who employ modern portfolio  
10 theory."<sup>27</sup>

11  
12 **X. RECOMMENDATIONS**

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

14 A. Staff recommends a 9.6 percent ROR for Goodman. Staff's recommendation is based on  
15 a capital structure composed of 0 percent debt and 100 percent equity and a 9.6 percent  
16 ROE as shown Table 4 below.

17  
18 **Table 4**

	<b>Weight Cost</b>		<b>Weighted Cost</b>
Long-term Debt	0%	0%	0%
Common Equity	100%	9.6%	<u>9.6%</u>
<b>Cost of Capital/ROR</b>			<b>9.6%</b>

19  
<sup>26</sup> Direct Testimony of Thomas J. Bourassa, Goodman Water Company. Company, Docket no. W-02500A-06-0281,, page 31 of 48.

<sup>27</sup> Parcell, David C. *The Cost of Capital – A Practitioner's Guide*. Parcell. 1997. p. 6 – 23.

1 Staff further recommends that the Commission reject the Company's proposed 10.5  
2 percent ROR. The Company's proposed ROR is supported by ROE estimation methods  
3 that are not reliable representatives of the current cost of equity capital.

4

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

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

**Goodman Water Company**  
 Capital Structure  
 And Weighted Average Cost of Capital  
 Staff Recommended and Company Proposed

[A]	[B]	[C]	[D]
<u>Description</u>	<u>Weight (%)</u>	<u>Cost</u>	<u>Weighted Cost</u>
Staff Recommended Structure			
Debt	0.0% <sup>1</sup>	0.0%	0.0%
Common Equity	100.0% <sup>1</sup>	9.6% <sup>2</sup>	9.6%
Weighted Average Cost of Capital/ROR			<b>9.6%</b>
Company Proposed Structure			
Debt	0.0%	0.0%	0.0%
Common Equity	100.0%	10.5%	10.5%
Weighted Average Cost of Capital/ROR			<b>10.5%</b>

[D] : [B] x [C]  
 1 Supporting Schedules: SPI-3  
 2 Supporting Schedule: SPI-2

Goodman Water Company  
Final Cost of Equity Estimates  
Sample Water Utilities

[A]	[B]	[C]	[D]	[E]
<b><u>DCF Method</u></b>				
Constant Growth DCF Estimate		$\frac{D_1/P_0}{1}$	+	$g^2$
Multi-Stage DCF Estimate		2.8%	+	5.7%
<b>Average of DCF Estimates</b>				<b><u>k</u></b>
				8.5%
				<u>9.5%</u>
				<b>9.0%</b>
<b><u>CAPM Method</u></b>				
Historical Market Risk Premium <sup>3</sup>	$R_f$	$\beta^5$	x	$(R_p)$
Current Market Risk Premium <sup>4</sup>	4.5%	0.82	x	10.7%
<b>Average of CAPM Estimates</b>	4.7%	0.82	x	<u>9.4%</u>
				<b>10.1%</b>
			<b>Average</b>	<b>9.6%</b>
			<b>Total</b>	<b>9.6%</b>

1 MSN Money and Value Line

2 SPI-7

3 Wall Street Journal (RJ) 5, 7, and 10 year Treasury rates

4 Wall Street Journal (RJ) 30 Year Treasury bond rate

5 Value Line

6 Historical Market Risk Premium (Rp) from Ibbotson Associates S&P 2005 Yearbook

7 Testimony

Goodman Water Company  
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	52.2%	47.8%	100.0%
California Water	50.4%	49.6%	100.0%
Aqua America	55.0%	45.0%	100.0%
Connecticut Water	45.0%	55.0%	100.0%
Middlesex Water	58.9%	41.1%	100.0%
SJW Corp	<u>46.6%</u>	<u>53.4%</u>	<u>100.0%</u>
Average Sample Water Utilities	51.4%	48.6%	100.0%
Goodman Water Company	0.0%	100.0%	100.0%

Source:  
Sample Water Companies from Value Line

Goodman Water Company  
Growth in Earnings and Dividends  
Sample Water Utilities

[A]	[B]	[C]	[D]	[E]
<u>Company</u>	Dividends Per Share 1996 to 2005 <u>DPS<sup>1</sup></u>	Dividends Per Share Projected <u>DPS<sup>1</sup></u>	Earnings Per Share 1996 to 2005 <u>EPS<sup>1</sup></u>	Earnings Per Share Projected <u>EPS<sup>1</sup></u>
American States Water	1.1%	1.3%	2.5%	7.6%
California Water	1.1%	1.4%	2.3%	4.1%
Aqua America	6.2%	12.5%	9.4%	12.0%
Connecticut Water	1.3%	No Projection	-0.9%	No Projection
Middlesex Water	2.2%	No Projection	0.4%	No Projection
SJW Corp	<u>4.2%</u>	<u>No Projection</u>	<u>6.6%</u>	<u>No Projection</u>
Average Sample Water Utilities	2.7%	5.0%	4.2%	7.9%

<sup>1</sup> Value Line

<sup>2</sup> Note that the figure -0.9% has been excluded from the calculation.

Goodman Water Company  
Sustainable Growth  
Sample Water Utilities

[A]	[B]	[C]	[D]	[E]	[F]
<u>Company</u>	Retention Growth 1996 to 2005 <u>br</u>	Retention Growth Projected <u>br</u>	Stock Financing Growth <u>vs</u>	Sustainable Growth 1996 to 2005 <u>br + vs</u>	Sustainable Growth Projected <u>br + vs</u>
American States Water	2.6%	5.1%	1.5%	4.1%	6.6%
California Water	2.6%	2.9%	2.6%	5.2%	5.6%
Aqua America	4.4%	6.3%	6.6%	11.0%	12.9%
Connecticut Water	2.7%	No Projection	0.6%	3.3%	No Projection
Middlesex Water	1.2%	No Projection	4.4%	5.6%	No Projection
SJW Corp	5.2%	No Projection	0.0%	<u>5.2%</u>	<u>No Projection</u>
Average Sample Water Utilities	3.1%	4.8%	2.6%	5.7%	8.4%

[B]: Value Line

[C]: Value Line

[D]: Value Line and MSN Money

[E]: [B]+[D]

[F]: [C]+[D]

Goodman Water Company  
Selected Financial Data of Sample Water Utilities

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Company	Symbol	Spot Price 11/1/2006	Book Value	Mkt To Book	Value Line Beta	Raw Beta
American States Water	AWR	40.69	16.31	2.5	0.80	0.67
California Water	CWT	37.58	16.84	2.2	0.85	0.75
Aqua America	WTR	23.55	6.61	3.6	0.85	0.75
Connecticut Water	CTWS	22.00	11.88	1.9	0.85	0.75
Middlesex Water	MSEX	18.85	8.70	2.2	0.80	0.67
SJW Corp	SJW	32.31	10.80	3.0	0.75	0.60
Average				2.6	0.82	0.70

[C]: MSN Money

[D]: Value Line

[E]: [C] / [D]

[F]: Value Line

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

Goodman Water Company  
 Calculation of Expected Infinite Annual Growth in Dividends  
 Sample Water Utilities

[A]	[B]
<u>Description</u>	<u>g</u>
DPS Growth - Historical <sup>1</sup>	2.7%
DPS Growth - Projected <sup>1</sup>	5.0%
EPS Growth - Historical <sup>1</sup>	4.2%
EPS Growth - Projected <sup>1</sup>	7.9%
Sustainable Growth - Historical <sup>2</sup>	5.7%
<u>Sustainable Growth - Projected<sup>2</sup></u>	<u>8.4%</u>
Average	<b>5.7%</b>

<sup>1</sup> Schedule SPI-4

<sup>2</sup> Schedule SPI-5

Goodman Water Company  
Multi-Stage DCF Estimates  
Sample Water Utilities

[A] Company	[B] Current Mkt. Price (P <sub>0</sub> ) <sup>1</sup> 11/1/2006	[C] Projected Dividends <sup>2</sup> (Stage 1 growth) (D <sub>t</sub> )				[E] d <sub>3</sub>	[F] d <sub>4</sub>	[H] Stage 2 growth <sup>3</sup> (g <sub>n</sub> )	[I] Equity Cost Estimate (K) <sup>4</sup>
		d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>				
American States Water	40.7	0.94	0.99	1.05	1.11		6.8%	9.0%	
California Water	37.6	1.20	1.27	1.34	1.41		6.8%	9.9%	
Aqua America	23.6	0.47	0.49	0.52	0.55		6.8%	8.7%	
Connecticut Water	22.0	0.87	0.92	0.97	1.03		6.8%	10.6%	
Middlesex Water	18.9	0.72	0.76	0.80	0.85		6.8%	10.5%	
SJW Corp	32.3	0.59	0.62	0.66	0.69		6.8%	8.5%	

Average **9.5%**

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

Where : P<sub>0</sub> = current stock price

D<sub>t</sub> = dividends expected during stage 1

K = cost of equity

n = years of non - constant growth

D<sub>n</sub> = dividend expected in year n

g<sub>n</sub> = constant rate of growth expected after year n

1 [B] see schedule SPI-6

2 Derived from Value Line Information

3 Average annual growth in GDP 1929 - 2005 in current dollars.

4 Internal Rate of Return of Projected Dividends

**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

JEFF HATCH-MILLER, Chairman  
WILLIAM A. MUNDELL  
MIKE GLEASON  
KRISTIN K. MAYES  
BARRY WONG

IN THE MATTER OF THE APPLICATION OF  
GOODMAN WATER COMPANY FOR A RATE  
INCREASE.

---

DOCKET NO. W-02500A-06-0281

DIRECT TESTIMONY

OF

MARLIN SCOTT, JR.

UTILITIES ENGINEER

UTILITIES DIVISION

NOVEMBER 24, 2006

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**EXECUTIVE SUMMARY  
GOODMAN WATER COMPANY  
DOCKET NO. W-02500A-06-0281**

**CONCLUSIONS**

- A. The Goodman Water Company (“Company”) has a water loss of 9.3% which is within acceptable limits.
- B. The Company’s current well source and storage capacity are adequate to serve the present customer base and reasonable growth.
- C. The Arizona Department of Environmental Quality (“ADEQ”) has reported no major deficiencies and based on data submitted to ADEQ, ADEQ has determined that the Company’s system, PWS #11-130, is currently delivering water that meets water quality standards required by the Arizona Administrative Code, Title 18, Chapter 4.
- D. The Company reported the arsenic concentrations for its Well #1 at 2.7 parts per billion (“ppb”) and Well #2 at 1.0 ppb. Based on these levels, the Company is in compliance with the new arsenic standard.
- E. The Company is located in the Arizona Department of Water Resources Tucson Active Management Area (“AMA”) and is in compliance with AMA water use and monitoring requirements.
- F. The Company has no outstanding Arizona Corporation Commission compliance issues.

**RECOMMENDATIONS**

- 1. Staff recommends the Company’s annual cost of \$3,639 be adopted for the water testing expense in this proceeding.
- 2. Staff recommends that the Company use the depreciation rates by individual National Association of Regulatory Utility Commissioners category presented in Table H-1 on a going-forward basis.
- 3. The Company has requested no changes to its service line and meter installation charges; however, Staff recommends the deletion of the 5-inch meter installation charge due to the fact that 5-inch meters do not exist. This change is shown in Table I-1.

1    **INTRODUCTION**

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

3    A.    My name is Marlin Scott, Jr. My place of employment is the Arizona Corporation  
4           Commission (“Commission”), Utilities Division, 1200 West Washington Street, Phoenix,  
5           Arizona 85007. My job title is Utilities Engineer.

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

8    A.    I have been employed by the Commission since November 1987.

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

11   A.    As a Utilities Engineer, specializing in water and wastewater engineering, my  
12           responsibilities include: the inspection, investigation, and evaluation of water and  
13           wastewater systems; preparing reconstruction cost new and/or original cost studies, cost of  
14           service studies and investigative reports; providing technical recommendations and  
15           suggesting corrective action for water and wastewater systems; and providing written and  
16           oral testimony on rate applications and other cases before the Commission.

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

19   A.    I have analyzed approximately 455 cases covering various responsibilities for the Utilities  
20           Division.

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

23   A.    Yes, I have testified in 53 proceedings before this Commission.

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

2 A. I graduated from Northern Arizona University in 1984 with a Bachelor of Science degree  
3 in Civil Engineering Technology.

4  
5 **Q. Briefly describe your pertinent work experience.**

6 A. Prior to my employment with the Commission, I was Assistant Engineer for the City of  
7 Winslow, Arizona, for about two years. Prior to that, I was a Civil Engineering  
8 Technician with the U.S. Public Health Service in Winslow for approximately six years.

9  
10 **Q. Please state your professional membership, registrations, and licenses.**

11 A. I am a member of the National Association of Regulatory Utility Commissioners  
12 (“NARUC”) Staff Subcommittee on Water.

13  
14 **PURPOSE OF TESTIMONY**

15 **Q. Were you assigned to provide the Utilities Division Staff’s (“Staff”) engineering**  
16 **analysis and recommendation for the Goodman Water Company (“Company”) in**  
17 **this proceeding?**

18 A. Yes. I reviewed the Company’s rate application and inspected the water system on  
19 August 21, 2006. This testimony and its attachment present Staff’s engineering  
20 evaluation.

21  
22 **ENGINEERING REPORT**

23 **Q. Please describe the attached Engineering Report, Exhibits MSJ-1.**

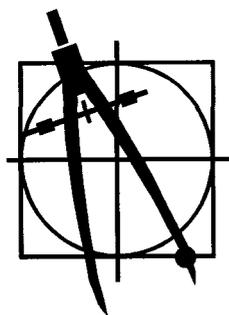
24 A. Exhibit MSJ-1 presents the details of Staff’s analysis and findings and is attached to this  
25 direct testimony. Exhibit MSJ-1 contains the following major topics: (1) a description of  
26 the water system, (2) water use, (3) growth, (4) compliance with the rules of the Arizona

1 Department of Environmental Quality, Arizona Department of Water Resources, and the  
2 Arizona Corporation Commission, (5) depreciation rates, (6) service line and meter  
3 installation charges, and (7) curtailment plan and backflow prevention tariffs.

4  
5 Staff's conclusions and recommendations from this engineering report are contained in the  
6 "EXECUTIVE SUMMARY" above.

7  
8 **Q. Does this conclude your direct testimony?**

9 **A. Yes.**



**Engineering Report  
For  
Goodman Water Company  
Docket No. W-02500A-06-0281 (Rates)**

September 11, 2006

**A. LOCATION OF GOODMAN WATER COMPANY (“COMPANY”)**

The Company serves a community located approximately two miles south of Oracle Junction and approximately 22 miles north of downtown Tucson. Figure A-1 shows the location of the Company within Pinal County and Figure A-2 shows the approximate 1.33 square-miles of certificated area.

**B. DESCRIPTION OF WATER SYSTEM**

The water system was field inspected on August 21, 2006, by Marlin Scott, Jr., Staff Utilities Engineer, and Charles Myhlhousen, Staff Analyst, in the accompaniment of Christopher Hill, representing the Company.

The operation of the water system consisted of two wells, one storage tank, two booster systems and a distribution system serving 479 customers during the test year ending September 30, 2005. A system schematic is shown in Figure B-1 with detailed plant facility descriptions as follows:

Table 1. Well Data

Well Data	Well #1	Well #2
ADWR ID No.	55-610541	55-595228
Casing Size	12-inch	16-inch
Casing Depth	700 feet	618 feet
Year Drilled	1982	2004
Pump	75-Hp Vertical Turbine	100-Hp Vertical Turbine
Flow Rate	650 GPM	800 GPM
Meter Size	8-inch	8-inch
Treatment	Liquid Chlorination	Liquid Chlorination
Surge Tank	5,000 gallon	5,000 gallon

Table 2. Storage Tank

Capacity (Gallons)	Quantity (Each)	Location	Year Constructed
400,000	1	Well Site #1	2001

Table 3. Booster Systems

Location	Plant Facilities	Storage Tank (From Table 2)
Well Site #1	20, 40, 50 & 75-Hp booster pumps	400,000 gal. storage tank
	5,000 gal. pressure tank (surge)	
Plant #4	5, 10, 15 and 40-Hp booster pumps	
	Two 5,000 gal. pressure tanks (surge)	
	8-inch meter	

Table 4. Water Mains

Diameter	Material	Length
6-inch	PVC	2,750 ft.
8-inch	PVC	3,770 ft.
10-inch	PVC	7,720 ft.
12-inch	DIP	208 ft.
	Total:	14,448 ft.

Table 5. Customer Meters

Size	Quantity
5/8 x 3/4-inch	431
3/4-inch	-
1- inch	45
1-1/2-inch	-
2-inch	3
3-inch	-
Total:	479

Table 6. Fire Hydrants

Size	Quantity
Standard	25

Table 7. Structures & Treatment Equipment

Structures & Treatment Equipment
Well #1: Liquid chlorination unit and 150 feet by 150 feet block wall fencing
Well #2: Liquid chlorination unit and 100 feet by 100 feet block wall fencing
Plant #4: 75 feet by 100 feet block wall fencing
Note: All three sites have security camera/laser beam units that were installed in 2006 and were not in operation during Staff's inspection date. According to the Company, these units were not reported in this rate case filing.

**C. WATER USE**

Water Sold

Based on the information provided by the Company, water use for the year 2005 is presented in Figure C-1. Customer consumption experienced a high monthly average water use of 465 gallons per day ("GPD") per connection in October and a low monthly average water use of 129 GPD per connection in March for an average annual use of 267 GPD per connection.

Non-Account Water

Non-account water should be 10% or less. The Company reported 49,395,000 gallons pumped and 44,810,000 gallons sold, resulting in a water loss of 9.3%. This 9.3% is within the acceptable limits.

System Analysis

The water system's current well source capacity of 1,450 GPM and storage capacity of 400,000 gallons is adequate to serve the present customer base and reasonable growth.

**D. GROWTH**

Figure D-1 depicts the customer growth using linear regression analysis. The number of service connections was obtained from annual reports submitted to the Commission. During the year

2005, the Company had 479 customers and it is projected that the Company could have approximately 1,180 customers by December 2010.

#### **E. ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (“ADEQ”) COMPLIANCE**

##### Compliance

ADEQ reported the Company’s system, PWS #11-130, has no major deficiencies and based on data submitted to ADEQ, ADEQ has determined that this system is currently delivering water that meets water quality standards required by the Arizona Administrative Code, Title 18, Chapter 4.

##### Water Testing Expense

The Company reported its water testing expense at \$3,639 for the test year. Staff has reviewed this reported amount and recommends this annual cost of \$3,639 be adopted for this proceeding.

##### Arsenic

The U.S. Environmental Protection Agency has reduced the arsenic maximum contaminant level (“MCL”) in drinking water from 50 parts per billion (“ppb”) to 10 ppb. The date for compliance with the new MCL was January 23rd, 2006.

The Company reported the arsenic concentrations for its Well #1 at 2.7 ppb and Well #2 at 1.0 ppb. Based on these levels, the Company is in compliance with the new arsenic standard.

#### **F. ARIZONA DEPARTMENT OF WATER RESOURCES (“ADWR”) COMPLIANCE**

The Company is located in the Tucson Active Management Area (“AMA”) and is subject to AMA reporting and conservation requirements. Since the Company pumps less than 250 acre-feet of water per year, it is considered a small provider by ADWR and is not subject to conservation rules. The Company is required to monitor and report water use. ADWR reported that the Company has complied with its water use and monitoring requirements.

#### **G. ACC COMPLIANCE**

According to the Utilities Division Compliance Section, the Company has no outstanding ACC compliance issues.

**H. DEPRECIATION RATES**

The Company has been using a depreciation rate of 2.50% in every National Association of Regulatory Utility Commissioners (“NARUC”) plant category. In recent orders, the Commission has been shifting away from the use of a composite rate in favor of individual depreciation rates by NARUC category. (For example, a uniform 2.50% composite rate would not really be appropriate for either vehicles or transmission mains and instead, different specific depreciation rates should be used.)

Staff has developed typical and customary depreciation rates within a range of anticipated equipment life. These rates are presented in Table H-1 and it is recommended that the Company use these depreciation rates by individual NARUC category on a going-forward basis.

**I. SERVICE LINE AND METER INSTALLATION CHARGES**

The Company has requested no changes to its service line and meter installation charges. Staff however, recommends the deletion of the 5-inch meter installation charge due to the fact that 5-inch meters do not exist. This change is shown in Table I-1.

**J. CURTAILMENT PLAN TARIFF**

The Company has an approved curtailment tariff that became effective on February 18, 2003, by Decision No. 65651.

**K. BACKFLOW PREVENTION TARIFF**

The Company has an approved backflow prevention tariff that became effective on February 18, 2003, by Decision No. 65651.

FIGURES

Pinal County Map ..... Figure A-1

Certificated Area ..... Figure A-2

System Schematic ..... Figure B-1

Water Use..... Figure C-1

Growth ..... Figure D-1

TABLES

Depreciation Rates ..... Table H-1

Service Line and Meter Installation Charges..... Table I-1

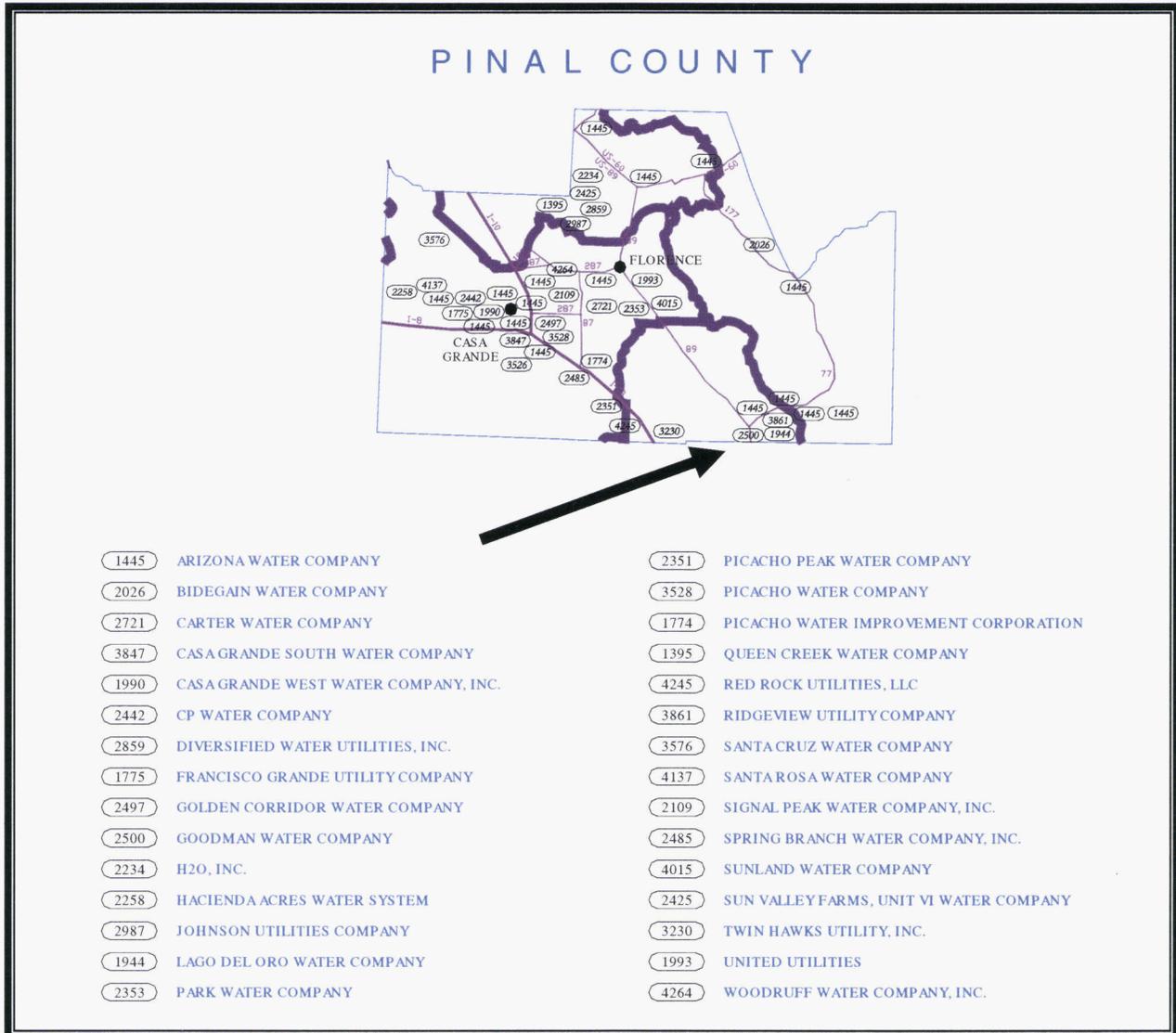


Figure A-1. Pinal County Map

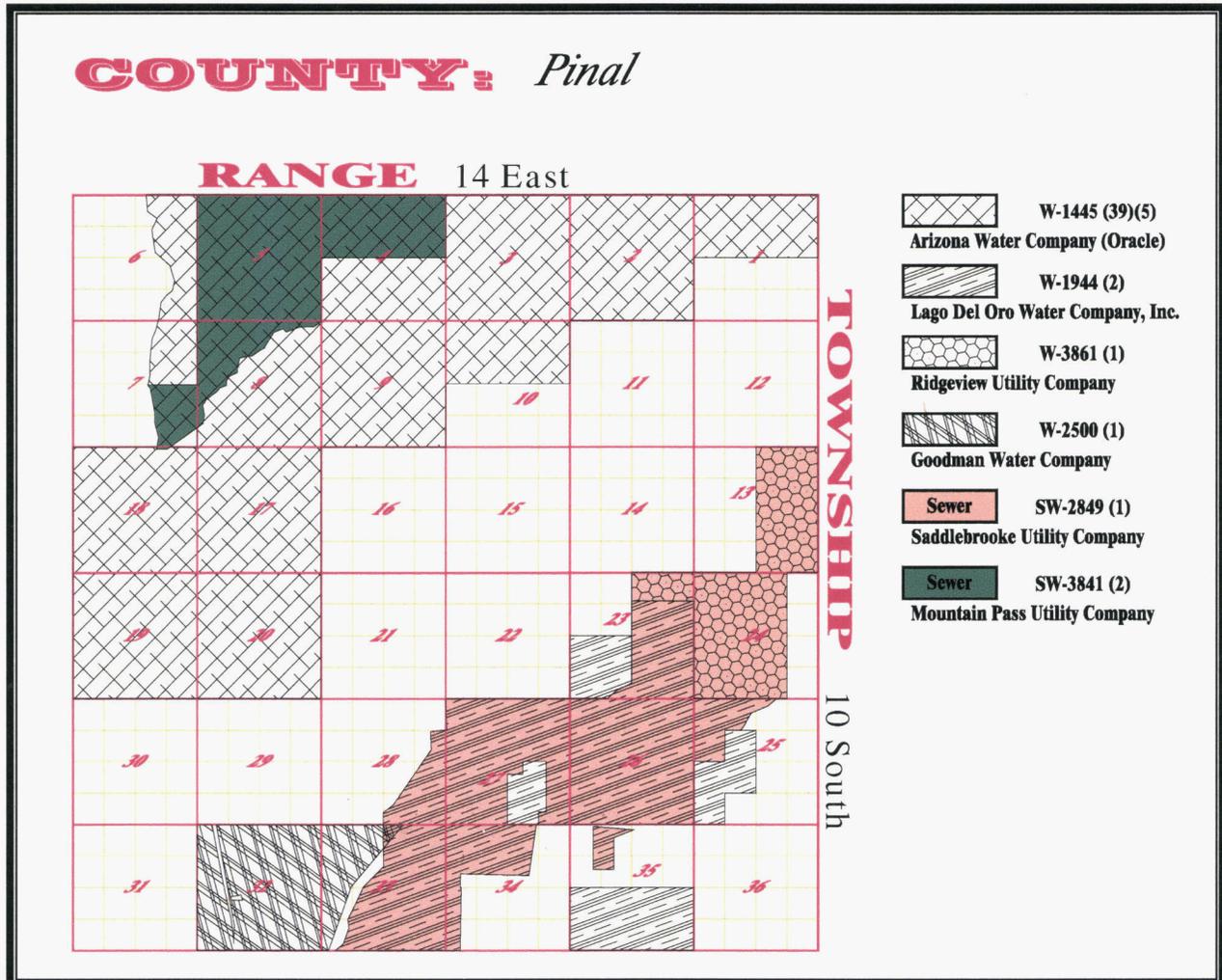


Figure A-2. Certificated Area

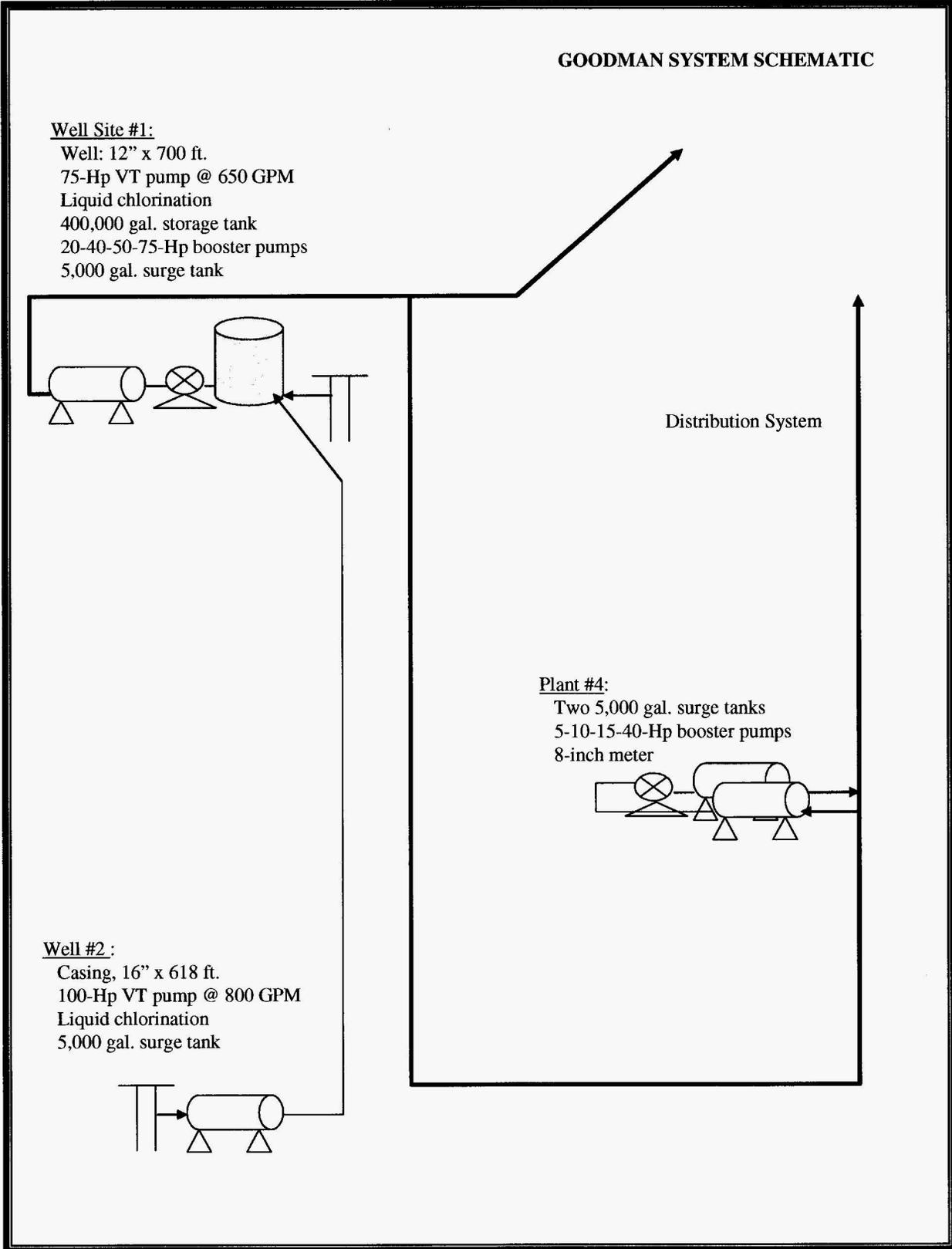


Figure B-1. System Schematic

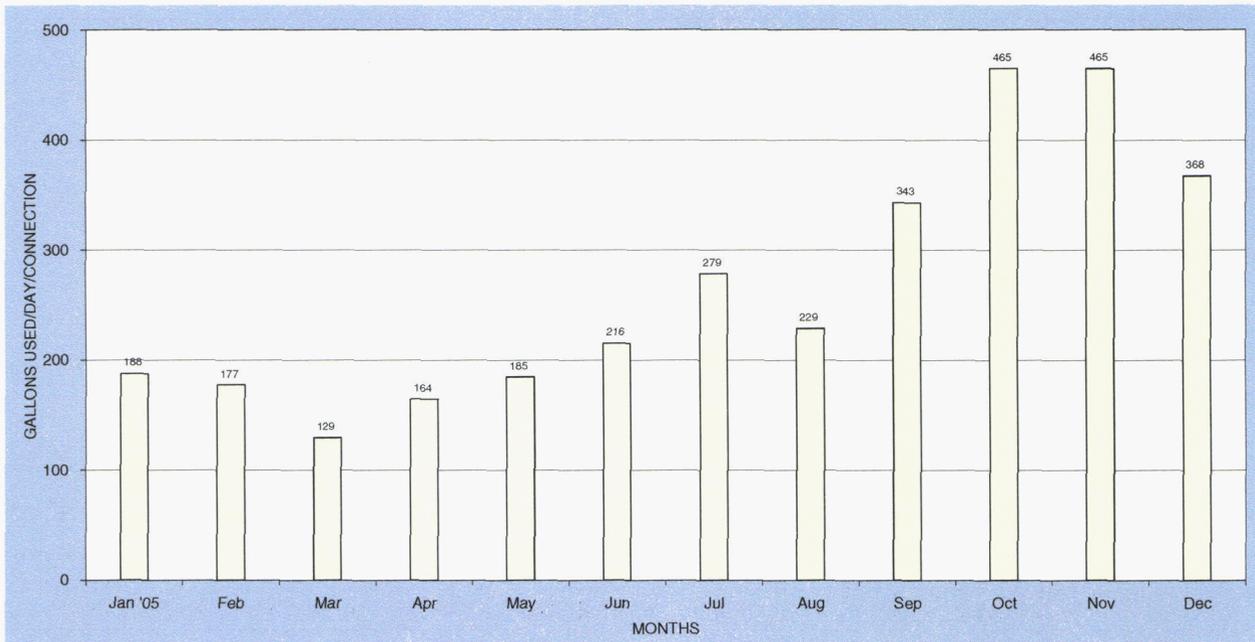


Figure C-1. Water Use

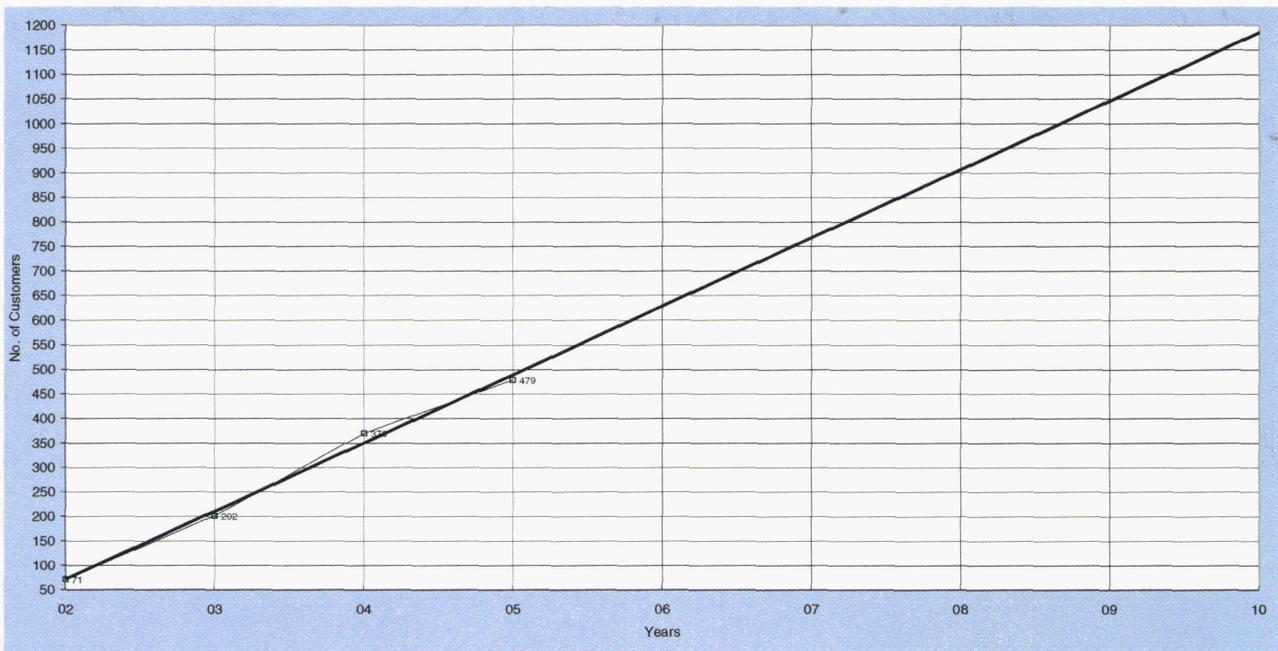


Figure D-1. Growth

Table H-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	30	3.33
330	Distribution Reservoirs & Standpipes	45	2.22
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
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 I-1. Service Line and Meter Installation Charges

Meter Size	Current Charges	Recommended Charges
5/8 x3/4-inch	\$225	\$225
3/4-inch	\$270	\$270
1-inch	\$300	\$300
1-1/2-inch	\$425	\$425
2-inch	\$550	\$550
3-inch	\$750	\$750
4-inch	\$1,375	\$1,375
5-inch	\$2,090	None
6-inch	\$2,800	\$2,800