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IN THE MATTER OF THE APPLICATION OF ARIZONA-AMERICAN WATER COMPANY, INC., AN ARIZONA CORPORATION, FOR AUTHORITY TO IMPLEMENT ARSENIC COST RECOVERY MECHANISMS FOR ITS AGUA FRIA WATER, SUN CITY WEST WATER, HAVASU WATER, AND TUBAC WATER DISTRICTS	DOCKET NO. W-01303A-05-0280
IN THE MATTER OF THE APPLICATION OF ARIZONA-AMERICAN WATER COMPANY, INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES BASED THEREON FOR UTILITY SERVICE BY ITS SUN CITY WEST WATER AND WASTEWATER DISTRICTS.	DOCKET NO. WS-01303A-02-0867
IN THE MATTER OF THE APPLICATION OF ARIZONA-AMERICAN WATER COMPANY, INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES BASED THEREON FOR UTILITY SERVICE BY ITS MOHAVE WATER DISTRICT AND ITS HAVASU WATER DISTRICT.	DOCKET NO. W-01303A-02-0869 **DIRECT TESTIMONY OF THOMAS M. BRODERICK [REVISED JUNE 8, 2005]**

Arizona Corporation Commission
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IN THE MATTER OF THE APPLICATION OF ARIZONA-AMERICAN WATER COMPANY, INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES BASED THEREON FOR UTILITY SERVICE BY ITS ANTHEM WATER DISTRICT, ITS AGUA FRIA WATER DISTRICT, AND ITS ANTHEM/AGUA FRIA WASTEWATER DISTRICT.	DOCKET NO. WS-01303A-02-0870

DIRECT TESTIMONY
OF
THOMAS M. BRODERICK.
ON BEHALF OF
ARIZONA AMERICAN WATER COMPANY
APRIL 15, 2005
[REVISED JUNE 8, 2005]

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EXECUTIVE SUMMARY

Thomas M. Broderick testifies that:

Arizona American Water Company is requesting that the Commission approve by August 31, 2005, an Arsenic Cost Recovery Mechanism ("ACRM") for its Agua Fria, Havasu, and Sun City West Water Districts. This request includes both the mechanism and the procedure for its use. Once approved, Arizona American will subsequently make a series of filings for each district for specific ACRM surcharge step increases based on actual capital costs and recoverable deferred and recurring operating and maintenance expenses. Eligible capital costs include depreciation expense and gross return.

New arsenic-removal facilities are required because of the new federal arsenic standard, which reduces the allowable drinking-water concentration from 50 to 10 parts per billion. Presently, Arizona American delivers water in each of these three districts at levels below the current standard but in excess of the new standard. The construction of the new arsenic-removal facilities in these districts will require approximately $22 million in capital investment. Arizona American estimates that average monthly ACRM surcharges for capital costs and recurring O&M will range from $5.61 to $18.06, depending on the water district.

In Commission Decision No. 66400 dated October 14, 2003, an ACRM was approved for Arizona Water's Northern Division. Arizona American's request for the ACRM is essentially identical to the mechanism approved in that Decision. The only exception is that Arizona American requests a new hook-up fee for its Havasu water district, to be effective upon an order in this portion of the proceeding.

In 2004, Arizona American earned less than its authorized return in all three of these districts and earnings will further erode in 2005 and beyond. The ACRM helps mitigate this financial harm.

A generic timeline for ACRM proceedings and implementation is included in the testimony. Arizona American intends to file permanent new rate cases for Agua Fria and Sun City West not later than April 30, 2008, and for Havasu not later than April 30, 2009. The ACRM surcharge would cease upon the effective date of permanent new rates in each district.

The Company recently held community outreach meetings in Havasu.

I. INTRODUCTION

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

A. My name is Thomas M. Broderick. I hold the position of Manager, Government & Regulatory Affairs for American Water, Western Region. Arizona American Water Company ("Arizona American" or the "Company") is a wholly owned subsidiary of American Water. My business address is 19820 N. 7th St, Suite 201, Phoenix, Arizona 85024-1694.

Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES FOR THE COMPANY.

A. I am responsible for Arizona American's day-to-day relations with the Arizona Corporation Commission ("Commission") and for community relations in Arizona. I also support regulatory activities in Arizona and occasionally in other jurisdictions. These are all shared responsibilities with other Arizona American employees.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATIONAL BACKGROUND.

A. Over the past 20 years I have held various management positions in the electric-utiltity industry with responsibilities for regulatory and government affairs, corporate economics, planning, load forecasting, finance and budgeting with Arizona Public Service Company, PG&E National Energy Group, PG&E Energy Services, and the United States Agency for International Development. I was employed at APS for nearly 14 years as Supervisor, Regulatory Affairs, then Supervisor, Forecasting, and then Manager, Planning. I was APS' Chief Economist in the early 1990's. For PG&E National Energy Group, I was Director, Western Region, External Relations. I was hired by Arizona American in 2004.

I have a Masters in Economics from the University of Wisconsin – Madison and a Bachelor in Economics from Arizona State University.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?

A. Yes, on several occasions on behalf of APS, PG&E, and once on behalf of the Arizona School Boards Association.

Q. WHAT IS THE SCOPE OF YOUR TESTIMONY IN THIS CASE?

A. The scope of my testimony is as set forth in my Executive Summary, above.

II. REQUEST FOR ARSENIC COST RECOVERY MECHANISM ("ACRM")

Q. WHAT IS THE COMPANY'S REQUEST IN THIS PART OF THE PROCEEDING?

A. Arizona American Water requests Commission approval by August 31, 2005, of an Arsenic Cost Recovery Mechanism ("ACRM") for its Agua Fria, Havasu, and Sun City West Water Districts. This request includes both the mechanism and the procedure for its use. Once approved, Arizona American will subsequently make a series of filings for each district for specific ACRM surcharge step-increases based on actual capital costs and recoverable deferred and recurring operating and maintenance expenses. Eligible capital costs include depreciation expense and gross return.

Q. WHY IS THE COMPANY MAKING THIS REQUEST?

A. The United States Environmental Protection Agency requires that by January 23, 2006, all potable water deliveries, including Arizona American's contain not more than 10 parts per billion ("ppb") of arsenic. The present standard is substantially higher—50 ppb.

Presently, Arizona American delivers water in each of these three districts at levels below the present standard but in excess of the new standard. Compliance with the new arsenic standard will require very costly new capital additions with significant on-going operating and maintenance expenses. The construction of the new facilities in these three districts will require approximately $22 million in capital investment which will erode the financial integrity of Arizona American in these districts. Absent the approval of the ACRM, our financial integrity will rapidly erode until new permanent rates can be established in two to three years.

Q. HAVE YOU PROVIDED FINANCIAL DATA WHICH SHOW PRESENT EARNINGS?

A. Yes. I have attached ten schedules, including Schedule 6 which indicates that Arizona American did not earn its authorized return in any of these three districts in 2004. In other words, even before Arizona American begins construction of these new facilities, it is already under-earning in these districts. Earnings are anticipated to erode even further in 2005 while we are constructing the new facilities.

Q. WHAT FACILITIES WILL ACTUALLY NEED TO BE CONSTRUCTED?

A. Joseph Gross is testifying concerning technical details of the facilities Arizona American needs to construct to comply with the new federal standard. In addition to the three districts discussed in my testimony, Arizona American will also be utilizing technologies to remove arsenic in its Paradise Valley and Tubac Water Districts, but these will be the subject of separate Commission proceedings.

Q. IS ARIZONA AMERICAN COUNTING ON THE ACRM TO SIGNIFICANTLY REDUCE REGULATORY LAG?

A. Yes. The Company is requesting approval of the ACRM based on the assumption that, by design, ACRM step increases can be effective on customer bills within 45 to 90 days following each filing for a step increase. Otherwise, the value of the ACRM to Arizona American and its customers is significantly reduced, because, although the ACRM does recover the majority of the increased costs of the new facilities, it will not recover many increased operating costs, which will go unrecovered until another rate case. If ACRM recovery were also delayed, then the only alternative would be to file rate cases as soon as possible.

III. FEATURES OF THE REQUESTED ACRM

Q. HOW DOES ARIZONA AMERICAN'S REQUESTED ACRM COMPARE TO THE ACRM GRANTED FOR ARIZONA WATER COMPANY'S NORTHERN DIVISION?

A. In Commission Decision No. 66400 dated October 14, 2003, an ACRM was approved for Arizona Water's Northern Division. Arizona American's request for the ACRM is identical to what the Commission approved in that Decision, with one exception:

- Arizona American also requests a new hook-up fee contribution in its Havasu water district as described in Section VII of my testimony.

In all other respects, Arizona American's request is identical to the Arizona Water precedent including:

1. The ACRM is based solely on actual costs and costs eligible for recovery are depreciation, gross return, and recoverable O&M.

2. Actual rate recovery via the ACRM commences after new arsenic facilities are in service and are in compliance with the new US EPA standard for arsenic.
3. Establishment of deadlines for filing the next rate cases for these districts, without limit on Arizona American's ability to file earlier as per existing Commission orders.
4. An ACRM rate design composed of a 50/50 split of the recovery between monthly minimum charges and volumetric charges.
5. A financial presentation composed of ten standard schedules for each of the districts with the ACRM.
6. Recoverable O&M costs include only media replacement or regeneration, media replacement or regeneration service, and waste disposal.
7. A deferral for future recovery of up to 12 months of recoverable O&M without return commencing with the in-service of facility(s) within each district.
8. Two step-rate increases in each district with an ACRM.
9. No true-up of the ACRM for over or under collection.
10. Gross return included in the ACRM based upon earlier rate of return and return on equity findings (for Arizona American this is Commission Decision No 67093 dated June 30, 2004, which authorized a 9% ROE).

Q. HOW IS ARIZONA AMERICAN FINANCING THE FACILITIES?

A. Arizona American's parent American Water is financing these facilities with debt and equity. Arizona American considered borrowing from the Arizona Water Infrastructure Finance Authority ("WIFA"), but concluded that WIFA's borrowing rate did not offer savings over American Water. Arizona American is temporarily able to borrow from its parent company at a rate of 70 basis points over US Treasury rates— a rate much better

than Arizona American, or any other Arizona water company, could borrow on its own. Further, it does not appear that Arizona American would meet the times interest coverage test in WIFA's requirements.

Q. WHY IS ARIZONA AMERICAN REQUESTING A NEW HOOK-UP FEE CONTRIBUTION IN HAVASU?

A. In order to reduce the capital costs of arsenic removal facilities, the Company asks the Commission to approve a hook-up fee for new connections in the Havasu water district. Revenues raised would be treated as contributions in aid of construction. A number of existing customers in this district have told Arizona American representatives that they would like new customers to pay such a hook-up fee. In Section VII of my testimony, I support a $781 hook-up fee for new Havasu Water connections. The Company requests that this hook-up fee be approved effective with the order issued in this generic ACRM proceeding without further filings. The hook-up fee will remain in effect at least until the next rate case in Havasu at which time the Company may request they continue or cease. Revenues raised from the hook-up fee will be used to offset the actual capital costs of the arsenic removal facilities in Havasu and, thus, will reduce the ACRM surcharges.

IV. PROCEDURE FOR THE ACRM & SURCHARGE ESTIMATES

Q. WHAT FINANCIAL SCHEDULES IS THE COMPANY FILING IN CONNECTION WITH THE ACRM?

A. Illustrative Schedules 1 through 10 are attached to my testimony. These schedules provide the required information in the format approved for Arizona Water's Northern Division in Decision No. 66400. The Company will re-submit Schedules 1-10 each time

it makes an ACRM filing. This will amount to up to six more submittals (three water districts with two step increases each).

The illustrative Schedules use actual data for 2004 and Arizona American witness Joseph Gross' most recent cost estimates for the Company's arsenic facilities. They include:

- Schedule 1: Arizona American's most recent balance sheet at the time of a filing for an ACRM step increase.

- Schedule 2: The most recent income statement for Arizona American and for those districts the Company is requesting an ACRM step increase.

- Schedule 3: An earnings test schedule for each district where the Company is requesting an ACRM step increase. The earnings test will reflect the Company's most recent financial data.

- Schedule 4: A rate review schedule for each district showing the incremental and pro forma effects of the rate increase associated with arsenic removal capital and recoverable O&M costs on the financial data provided in Schedules 2 and 3.

- Schedule 5: A revenue requirement schedule showing the calculation of the required rate increase related to arsenic removal capital and recoverable recurring

O&M costs for each district. The schedule will also indicate the current, incremental increase, and proposed commodity rates and monthly minimums for a 5/8-inch equivalent meter.

- Schedule 6: A schedule showing the surcharge calculation for arsenic removal capital and recurring recoverable O&M costs for each district. Fifty percent of the total capital and recurring recoverable O&M costs will be in the form of a monthly minimum surcharge and fifty percent will be in the form of a commodity surcharge. The monthly minimum surcharge will be scaled to each customer class based on the current approved ratio between monthly meter size minimum. The schedule will also provide information related to number of customers by meter size and number of gallons sold. When the Company seeks recovery of deferred recoverable O&M costs, a similar schedule will be provided showing the calculation of the 12-month deferred recoverable O&M surcharge, calculated in the same manner as the recurring recoverable O&M surcharge.

- Schedule 7: A rate base schedule for each district showing the rate base determined in Decision No. 67093 as well as the most recent rate base calculated as of the date of the information provided in Schedules 1 and 2, both adjusted to reflect the inclusion of completed and in-service facilities related to arsenic treatment.

- Schedule 8: A CWIP Ledger showing monthly charges related to the construction of arsenic removal facilities by project.

- Schedule 9: A schedule showing the calculation of the Company's four-factor allocation methodology, similar to the three-factor ratios provided by Arizona Water Company in Docket No. 01445A-00-0962, at the request of Commission Staff.

- Schedule 10: A bill analysis comparing typical bills for customers on a 5/8-inch meter under present and proposed rates.

Q. WHY HAS ARIZONA AMERICAN SUBMITTED THESE ILLUSTRATIVE SCHEDULES?

A. To avoid any misunderstandings and delays to the actual filings, the Company wants all parties to know the anticipated amount of the ACRM surcharges. Estimated total ACRM monthly surcharge for the average residential 5/8-inch equivalent meter customer bill before taxes can be calculated as the difference between present and proposed rates on Schedule 10, line 20:

District	Present Rates	Proposed Rates	ACRM Increase
Havasu	$ 21.67	$ 39.73	$ 18.06
Sun City West	$ 22.71	$ 31.68	$ 8.97

Agua Fria	$ 20.78	$ 26.39	$ 5.61

Please note that these figures assume an average bill at the consumption level determined in the rate case. For each specific ACRM filing, the average bill calculations will be based on average consumption and customer levels at that time. Please also note that the figures above include both capital and recoverable O&M. Step 1 increases will only include capital costs, with recoverable O&M included in Step 2.

The estimated capital costs required in each of these districts to remove arsenic are displayed in Schedule 5, line 1:

Havasu	$ 1.7 million
Sun City West	$ 10.3 million
Agua Fria	$ 10.0 million
Total	$ 22.0 million

The 2004 pro forma actual returns on equity for each of these districts for 2004 are displayed in schedule 3, line 17:

Havasu	(4.48) %
Sun City West	1.26 %
Agua Fria	6.77 %

This compares to an authorized return on equity of 9%. Please note that the pro forma actual return on equity figures actually annualize the 2004 rate increase, which was not effective until July. Without annualizing, the reported returns would be even lower for the Havasu and Sun City West districts.

V. EXAMPLE OF ACRM TIMELINE

Q. WHAT IS ARIZONA AMERICAN'S ANTICIPATED TIMELINE FOR THE ENTIRE RATE PROCESS OF A SPECIFIC DISTRICT'S ACRM?

A. Each district will be somewhat unique, but we anticipate the following timeline after a Commission order is issued in this generic ACRM proceeding before August 31, 2005: (This example assumes a January 23, 2006, filing date for a water district with arsenic removal facilities already in service which are in compliance with the new arsenic standard.)

1) Arizona American compiles Schedules 1-10 using actual data and files them at the Commission on January 23, 2006, requesting a specific step 1 ACRM rate increase in that district. Step 1 does not include recoverable O&M. Rather, recoverable O&M for up to the first 12 months is deferred.

2) The parties review the filing and at an Open Meeting in late February 2006 the Commission approves a specific ACRM surcharge for that district which is effective on customer bills in March 2006.

3) Arizona American again compiles Schedules 1-10 using actual data and files them at the Commission on January 23, 2007, requesting a specific step 2 ACRM rate increase in that district. The step 2 increase includes recoverable O&M, both the deferred and recurring. Again, the amount of recurring O&M included in the mechanism is identical to the amount deferred, as set forth in the Arizona Water ACRM case. Like that case, recovery of the O&M deferral will occur via a separate line within the ACRM on customers' bills.

4) The parties review the filing and later at an Open Meeting in late February 2007 the Commission approves a step 2 specific ACRM surcharge for that district which is effective on customer bills in March 2007.

5) Next, after one year (March 2008), recovery of the deferred O&M will be complete, the separate line item for this recovery will disappear, and the total ACRM surcharge will decrease by this amount. The Company will continue to recover the recurring O&M and capital costs.

6) The ACRM surcharge will then remain on customer bills until the effective date of new permanent rates in that district, at which time the ACRM will end. It is possible that the effective date of new rates may happen in some instances during the timeframe outlined above.

Again, note that the above time frame is only illustrative and each Step 1 ACRM filing in a district will occur following successful construction and operation of arsenic removal facilities in each district.

VI. NEXT RATE CASE FILINGS

Q. WHAT IS ARIZONA AMERICAN'S PROPOSED SCHEDULE FOR FILING THE NEXT PERMANENT RATE CASES FOR THESE THREE DISTRICTS?

A. Arizona American proposes to file Agua Fria Water and Sun City West Water rate cases by April 30, 2008, and a Havasu Water rate case by April 30, 2009. Since the ACRM is only a partial cost recovery mechanism and Arizona American is under earning in these districts, it is possible that Arizona American may file rate cases sooner rather than later.

VII. NEW HOOK-UP FEE CONTRIBUTION

Q. PLEASE DESCRIBE THE COMPANY'S PROPOSAL FOR NEW HOOK-UP FEE CONTRIBUTIONS IN HAVASU.

A. Schedule 11 displays the Company's calculations and proposal for a new hook-up fee to be treated as a contribution in aid of construction. The fee would become effective immediately upon an order by the Commission in this current proceeding. The fee is based on the estimated cost of the arsenic facilities and the existing and maximum number of water connections. The proposed hook-up fee for a Havasu residential 5/8-inch meters is $781.

VIII. HAVASU COMMUNITY OUTREACH

Q. WHAT HAS ARIZONA AMERICAN WATER DONE TO REACH OUT TO THE HAVASU COMMUNITY ABOUT ARSENIC REMOVAL FACILITIES?

A. Arizona American has over 1,600 water connections in its Havasu Water District. The Company held community outreach meetings on March 21 and March 22, 2005. The Company advertised the meetings via press release and community bulletin boards known to our local employees. Approximately 25 people attended these two meetings. Concerns expressed at the meeting included the rate impact and other unrelated aspects of our existing water supply and water quality which our local employees are already addressing. We have not received any concerns from the community concerning the physical aspects of the project in Havasu. Several members of the Havasu community expressed an interest in attending Commission-sponsored public comment meetings in Havasu.

A number of residents of Havasu suggested to Company representatives that they would like new customers to pay a new hook-up fee to help defray the cost of the arsenic facilities to existing customers.

There has been fairly extensive local media coverage of construction related activities in Sun City West and Agua Fria. To-date, our only inquiries have been from just a few people in the immediate vicinity of the construction projects.

IX. CONCLUSION

Q. PLEASE SUMMARIZE YOUR REQUEST.

A. I have provided an Executive Summary at the beginning of my testimony.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

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

IN THE MATTER OF THE APPLICATION OF ARIZONA-AMERICAN WATER COMPANY, INC., AN ARIZONA CORPORATION, FOR AUTHORITY TO IMPLEMENT ARSENIC COST RECOVERY MECHANISMS FOR ITS AGUA FRIA WATER, SUN CITY WEST WATER, HAVASU WATER, AND TUBAC WATER DISTRICTS	DOCKET NO. W-1303A-05-0280
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IN THE MATTER OF THE APPLICATION OF ARIZONA-AMERICAN WATER COMPANY, INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES BASED THEREON FOR UTILITY SERVICE BY ITS ANTHEM WATER DISTRICT, ITS AGUA FRIA WATER DISTRICT, AND ITS ANTHEM/AGUA FRIA WASTEWATER DISTRICT.	DOCKET NO. WS-01303A-02-0870

DIRECT TESTIMONY
OF
JOSEPH E. GROSS. P. E.
ON BEHALF OF
ARIZONA AMERICAN WATER COMPANY
APRIL 15, 2005
[REVISED JUNE 8, 2005]

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EXECUTIVE SUMMARY

Mr. Gross discusses the arsenic treatment facilities currently planned by Arizona American Water Company to comply with the new federal mandate to reduce the arsenic concentration in drinking water from the currently allowed 50 parts per billion ("ppb") to 10 ppb. Arizona American plans to construct three facilities in its Agua Fria Water District, two in its Sun City West Water District, and one in its Havasu Water District.

Mr. Gross discusses the technologies chosen for each site, together with a functional description and cost estimate. He then describes how compliance will be verified.

Mr. Gross next discusses how the contracts were awarded for each project and how the contracts will be administered. Finally, Mr. Gross forecasts operation and maintenance costs for each facility.

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE NUMBER.

A. My name is Joseph E. Gross. My business address is 19820 N. 7th Street, Suite 201, Phoenix, Arizona 85024. My telephone number is 623-445-2401.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Arizona-American Water Company. ("Arizona American") as Project Delivery and Development Services Manager ("Engineering Manager") for Arizona.

Q. PLEASE BRIEFLY OUTLINE YOUR RESPONSIBILITIES AS THE ENGINEERING MANAGER.

A. I am responsible for project delivery of Arizona American's capital program and for development services, incorporating private development infrastructure into the company's production and distribution systems.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I received a Bachelor of Science degree from the United States Military Academy in civil engineering in 1962 and a Master of Science degree from the Ohio State University in Geodetic Science in 1968.

Q. DID YOU SERVE IN THE MILITARY FOLLOWING YOUR GRADUATION FROM THE UNITED STATES MILITARY ACADEMY?

A. Yes. I served as an officer in the United States Army for 28 years, including 12 months in Vietnam as a combat engineer battalion advisor to the Vietnamese; and 18 months as a battalion commander in the 101st Airborne Division. In 1979, I began a number of

assignments with the US Army Corps of Engineers, where I served until retirement in 1990.

Q. HAVE YOU HAD ANY OTHER FORMAL TRAINING?

A. I attended two-week senior executive management training programs at Carnegie Mellon University in 1986 and at Arizona State University in 1994.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.

A. I joined Arizona American in October 2004. I was previously employed by the City of Scottsdale for 14 years in the positions of Capital Project Management Director, Water Campus Project Director, and Water Resources Director. Before that, I had extensive field-level and executive-level experience in the US Army Corps of Engineers, including large projects located in the United States, Iran and Saudi Arabia. Among other responsibilities, I supervised the Corps' extensive flood-control projects in the Phoenix metropolitan area from 1979 to 1982. This included the construction of the Indian Bend Wash flood control facilities in Scottsdale, construction of Cave Buttes and Adobe Dams in north Phoenix, and design of the Arizona Canal Diversion Channel.

Q. ARE YOU A REGISTERED PROFESSIONAL ENGINEER?

A. Yes. I am a registered Professional Engineer in the states of Arizona and Pennsylvania.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE UTILITY REGULATORY COMMISSIONS?

A. No.

II. PURPOSE OF TESTIMONY

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

A. The purpose of my testimony is to summarize the planning, programming, and budgeting processes required to comply with the unfunded Federal mandate to reduce arsenic levels in drinking water from the current standard of 50 parts per billion (ppb) to 10 ppb by January, 23, 2006. Five of Arizona-American's water districts will require arsenic treatment. I will also address the design requirements leading to the current construction of arsenic treatment facilities in three of Arizona American's water districts. I will discuss the arsenic treatment facility for our Paradise Valley Water District in the Paradise Valley Water general rate case. The Company is still evaluating the appropriate technology for its Tubac Water District.

III. ARSENIC REMEDIATION PROGRAM

Q. PLEASE BRIEFLY DESCRIBE ARIZONA AMERICAN'S ARSENIC-REMEDIATION PROGRAM?

A. Our arsenic-remediation program will consist of eight treatment facilities in five Arizona-American districts. Three facilities will be required in our Agua Fria Water District, two in our Sun City West Water District, one in our Havasu Water District, and one in our Paradise Valley Water District. I have attached as Exhibit A to my testimony a map, which shows the location of each facility.

IV. ARSENIC TREATMENT TECHNOLOGY

Q. WHAT TREATMENT PROCESS HAS ARIZONA AMERICAN SELECTED FOR THE SEVEN ARSENIC REMEDIATION FACILITIES, WHICH ARE THE SUBJECT OF THIS CASE?

A. For six of the facilities, we have selected a granular-iron media-adsorption process as the most cost-effective method for arsenic remediation. As the incoming water passes through the contactor vessels, the arsenic ions are chemically attracted to the ferric ions and therefore adhere to the iron-based media. Water with very low levels of arsenic then flows out of the vessels for blending with other water sources, chlorination, and distribution. To insure a cost-effective process, only 60-70% of the influent water is actually treated. The treated water, containing very low levels of arsenic, is then blended with other source water; with the resultant arsenic level maintained at or below eight ppb. We used a competitive-bid process to select the manufacturer of the treatment vessels and awarded the contract to Severn Trent, Inc.

The Sun City West #1 site will utilize a coagulation-filtration process, where the arsenic ions are attracted by a ferric chloride solution added to the incoming water. The combined iron/arsenic precipitate is then removed via filtration, dewatered, and deposited in a landfill as non-hazardous material. The treated water proceeds to blending with other water sources, chlorination, and distribution. The blending process is the same as described above, which minimizes actual treatment costs. This procedure is more cost-

effective than the granular-iron process for facilities treating larger volumes of water, such as the Sun City West #1 site and our Paradise Valley site.

Exhibit B includes a functional description and cost estimate of each facility, again except for the Paradise Valley Water District facility.

V. VALIDATION OF PLANT PERFORMANCE

Q. WHAT TESTING AND VALIDATION PROCEDURES WILL ARIZONA AMERICAN USE TO INSURE COMPLIANCE WITH THE NEW ARSENIC STANDARD.

A. Each construction contract contains specifications requiring startup procedures and testing to insure arsenic levels do not exceed eight ppb, two ppb below the EPA's maximum contaminant level. We target a slightly lower arsenic level in the blended water to provide a margin of safety for compliance. To insure initial and continued compliance, samples will be taken at intervals specified by EPA and analyzed by a certified commercial-testing laboratory. Additionally, we will daily monitor various online instrument readings to insure proper operation of the facilities. If necessary, because of fluctuations in influent arsenic or other water quality parameters, we can readily adjust the percentage of the total flow so that we can satisfy our internal eight ppb standard.

VI. ARSENIC TREATMENT PROJECT STATUS

Q. HAVE YOU AWARDED CONSTRUCTION CONTRACTS FOR THE PROJECTS?

A. Yes. Again we used a competitive-bid process to select our construction contractors, based upon qualifications and low bids. In our Sun City West District, we analyzed proposals submitted by four firms and then awarded a design-build contract for the coagulation-filter project to D. L. Norton Company.

The remaining projects use a construction-manager-at-risk approach. Contractors were chosen based upon bids submitted by firms after examination of 30% plans. The design contracts for these projects were awarded after examination of cost and scope proposals by three qualified construction firms. Garney Construction was selected as the contractor for the remaining sites in Maricopa County and for the Havasu Water District project.

VII. CONTRACT ADMINISTRATION

Q. PLEASE DESCRIBE THE WORK AUTHORIZATION AND INVOICE MANAGEMENT PROGRAM FOR THESE FACILITIES.

A. Each firm will submit monthly invoices, which an Arizona-American project manager will examine for accuracy and completeness of work. Upon approval, invoices will be submitted to the corporate accounting office for payment. To insure satisfactory completion, we will withhold a ten-percent retainage from each invoice, payable only when the project has been completed, inspected and accepted. The ten-percent retainage

is a standard practice for Arizona-American on all but the smallest construction projects.

VIII. OPERATIONS AND MAINTENANCE COSTS

Q. WHAT IS ARIZONA AMERICAN'S O&M FORECAST FOR THESE ARSENIC-REMEDIATION FACILITIES.

A. New dedicated O&M costs consist of ferric chloride and other chemical costs and media replacement. These costs were considered in the evaluation of treatment methods for each site; and are extracted in the table shown as Exhibit C. Consistent with the Commission's approved ACRM for Arizona Water Company's Northern and Eastern Districts, we have not included in these forecasts the costs of additional, non-dedicated, staffing, or the costs of the increased power needed to operate these facilities. The ferric chloride and media used in the treatment process are currently not used anywhere else in Arizona American's system and are unique to the treatment process.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes it does.