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ARIZONA CORP. COMM
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In the matter of the Application of EPCOR Water Arizona, Inc., for a determination of the current fair value of its utility plant and property and for increases in its rates and charges for utility service by its Mohave Water District, Paradise Valley Water District, Sun City Water District, Tubac Water District, and Mohave Wastewater District.

Docket No. WS-01303A-14-0010

23 January 2015

ORIGINAL

Notice of Filing

Direct Testimony (including rate design issues)

by Marshall Magruder

The proposed rate design is unsatisfactory. It fails to comply with the Arizona Constitution by not providing fair rates for the same services for all ratepayers, regardless of location. It is not just or fair for all ratepayer classes and needlessly burdens the Company based on legacy convolutions. This results in multiple cases for the Commission staff, RUCO and all parties instead of a single integrated case. It conflicts with Arizona's water goals by not aiding water conservation. We must preserve our diminishing water resources that are critical for the growth and development by not rewarding the highest consuming users with low rates and rate increases. It does not provide equitable relief for lowest income ratepayers.

Most importantly, solutions for these issues do not impact the company's revenue.

This testimony discussed and provides solutions to three issues by fair and reasonable recommendations for the Company to revise its rate design in its Rebuttal in order to

a. Combine rates for ALL locations to comply with the Arizona Constitution, to
b. Provide equitable and fair rates for Lower Income customers, and to
c. Conserve water by using Cost as a key driver for water volumetric rates.

RESPECTFULLY SUBMITTED on this 23rd day of January 2015.

Arizona Corporation Commission
DOCKETED
JAN 23 2015
DOCKETED BY

By Marshall Magruder

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DIRECT TESTIMONY
(INCLUDING RATE DESIGN ISSUES)

by

MARSHALL MAGRUDER

23 JANUARY 2015

In

IN THE MATTER OF THE APPLICATION OF EPCOR WATER ARIZONA, INC., FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BY ITS MOHAVE WATER DISTRICT, PARADISE VALLEY WATER DISTRICT, SUN CITY WATER DISTRICT, TUBAC WATER DISTRICT, AND MOHAVE WASTEWATER DISTRICT.

ACC Docket No. SW-01303A-14-0010

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EXECUTIVE SUMMARY

ES-1 The Three Major Issues in this Case.

Q. Can you summarize the issues in this case?

A. This summary provides an overview for each issue presented by this party including preliminary conclusions and recommendations. There are three Issues that directly involve ratepayers in this case.

ES-2.1 Issue 1 – Combine Rates for Customers to Comply with Arizona Constitution.

All customers receive the same water products but with significant differences in Service Charges and Volumetric Rate structures, other charges and Rules and Regulations. This is a continuation of a discriminatory a rate design process that is not fair or reasonable. Consolidation is a Company goal and all parties agree is right, but it is the implementation details are where differences occur. A solution is presented to start this implementation as part of this rate case, as ordered by the Commission the "last rate case".

ES-2.2 Issue 2 – Provide Equitable and Fair rates for Lower income Customers.

There is no uniform mechanism proposed to provide lower income customers with an equitable and fair process. In general, who would qualify for lower income rates, do not apply, and thus, do not receive this benefit? This application process shown in other cases, that about 20% of those eligible, actually receive these lower rates. By having a low "First Tier", say for the first 3,000 gallons, and then all customers will receive adequate water for basic needs at a low cost. Additional water usage will be at the Second and higher tiers with a higher rate as a result. By designing the "First Tier" to have a very low cost for all ratepayers, then ALL customers would benefit; and any lost revenue is shifted to higher rate tiers because the Company needs to meet its total revenue requirements.

ES-2.3 Issue 3 – Conserve Water is the Key Driver for Water Volumetric Rates.

This concerns using realistic price signals in the rate structure design to encourage water conservation. Using low rates for the lowest consuming users and increasingly higher rates for higher consuming users. This sends multiple price signals to users that make it clearly more costly for those with higher usage. These price signals, at break points between the rate tier blocks, must be spread across the higher usage parts of the consumption curve, with ten or more, to make these price change points very obvious.

ES-3 Preliminary Conclusions.

Q. What are your preliminary conclusions?

A. Based on the following and previous testimonies, the following conclusions, including those in the following three Sections, are that:

1. The Company's *Total Revenue*, for all the water "districts," is the compulsory revenue requirement for a Rate Design needed to comply with the Arizona Constitution.

2. The Rate Design needs multiple Tiers to cover the range of water usage in each rate user category, with realistic tier price breakpoints, as price signals for ratepayers to conserve water consumption.

3. The Rate Design needs to include a low-cost "First" Tier for the first 3,000 gallons or so, for all ratepayers to meet their basic needs including those with the lowest income.

4. The Second and higher Tiers have increasingly higher rates to ensure "price signals" become ratepayer markers for lower costs analogous lower consumption.

5. The Company is requested to provide one combined Rate Design for the four water districts to all parties in its Rebuttal or sooner.

ES-4 Preliminary Recommendations are recommended

Q. What are your preliminary recommendations?

A. It is recommended, including those in the following three Sections, that:

1. The combined Total Revenue for all the water "districts" shall be the Company's required operational revenue requirement for one proposed Rate Design.

2. The Rate Design shall include at least five, with ten tiers being better, in each rate class and category, with most tiers for Residential Rate Categories and at least five tiers for all Commercial Rate Categories. In general, the tier break points should be between 5% and 20% of consumption for each in each Rate Category.

3. Both the Residential the Commercial Rate Categories (1-inch and smaller) should have a low rate (suggest below $1.50/1000 gallons) up to 3,000 gallons and Service Charge (suggest less than $20.00).

4. The Second and higher tiers rates shall be normalized to ensure the Company's Total Revenue requirements are summed Rate Class in the Rate Design.

5. This case does not include all ratepayers with contracts for water rate changes.

6. The Company provides a combined Rate Design in its Rebuttal that generally meets the recommendations herein, so that all parties can respond in their Surrebuttal.

Section I – BACKGROUND AND INTRODUCTION

1.1 INTRODUCTION

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

A. My name is Peyton Marshall Magruder, Jr. I am a customer and ratepayer for EPCOR Arizona, (formerly the Arizona-American Water Company, AAWC), public service company that serves the Tubac Water District, where I been active in various community projects including serving as the County and City of Nogales Energy Commissioner for eight years, as a volunteer tax preparer for the AARP Volunteer In Tax Assistance (VITA) for the last fifteen years and now am the county's VITA Instructor, and as a Director for the Tubac Community Center Foundation. I am a graduate of the Nogales Border Patrol Station Citizen's Academy and am a member of Its Border Patrol Citizens Advisory Board.

I recently held part-time jobs as a Senior Scientist and Information Systems Architect for Integrated Systems Improvement Services, Inc. in Sierra Vista, Arizona, involving information warfare, systems architectures, electronic and communications intelligence systems, test plans, information assurance, and information technology services. I have consulted as a Systems Engineer and Training Systems consultant at the Raytheon Naval and Maritime Systems in San Diego with engineering work involving US and Royal Navy aircraft carrier and amphibious warfare ship command, control, communications, computers, intelligence, surveillance and reconnaissance systems and training systems programs.

I worked as a Senior Tax Advisor Level 3 for H&R Block, for 14 years, retired from Raytheon/Hughes Aircraft Company as a Senior Systems Engineer after nearly 18 years, and am a retired Naval Officer with over 25 years service. Please see Appendix 1 for additional work experience descriptions.

As an instructor in the University of Phoenix MBA programs, I taught courses on Operations Management for Total Quality and Managing R&D and Innovation Processes. I have prepared a DoD architecture framework systems engineering process curriculum.

I serve as the Vice President of the Martin B-26 Marauder Historical Society and am the Fund Raising Chairman for an ongoing five million dollar "Lasting Legacy" fund drive to endow the MHS Marauder International Archive and restore a B-26 Marauder at the Pima Air and Space Museum, in Tucson. I am the coordinator for its annual Reunion this fall in Tucson and am writing a book on B-26 Marauders during the Battle of Midway.

My office and home address is PO Box 1267, Tubac, Arizona, 85646.

Q. Have you previously testified before this Commission?

A. Yes, I have participated in prior water, wastewater, electric, and natural gas rate cases, line siting cases, and others as shown in Appendix 1. In all the cases, I filed testimony and made appearances, either as a party or as an individual.

Q. What is your educational background and technical society memberships?

A. My latest degree is a Master of Science in System Management with majors in human factors and R&D from the University of Southern California with straight "As". My first graduate degree is from the Naval Postgraduate School, Monterey, California, in Physical Oceanography, the study of the physics of the ocean with electrical engineering courses involving underwater acoustics. I have taken advanced graduate-level EE courses at the University of Rhode Island involving acoustic array design, electronic beam forming and steering. I was awarded a Bachelor of Science Degree and commission in the United States Navy by the United States Naval Academy with extra courses in Operations Research/Analysis and History of Russian and Soviet Naval Tactics.

I am Golden (50-year) life-members of the Naval Institute and U.S. Naval Academy Alumni Association, a life-member of the Navy League, and Naval Surface Warfare Association and a member of the U.S. Naval Submarine League.

I have taken additional courses and held additional positions in Appendix 1.

Q. Could you explain what you do as a Systems Engineer?

A. A Systems Engineer coordinates, plans, schedules, integrates, and manages engineers of other technical disciplines. The Systems Engineer is a technical lead or director for a reasonably-sized project to determine the customer's needs, analyzes the requirements, usually writes the system/subsystem specifications, prepares and makes important trade-off decisions, manages the entire system development process, and leads the system/subsystem tests to ensure the product (e.g., the system) accomplishes the customer's requirements to satisfy a need. The integration and synthesis of multiple disciplines uses inputs from mechanical, electrical, civil, safety, human factors, integrated logistics, maintenance, reliability, operator and maintenance training, aerospace, acoustic, computer systems and networks, software, hardware, structural, reliability, production, test and test equipment engineers and other specialist disciplines are the primary roles for a

Systems Engineer. System Engineering tasks may involve developing the system architecture, evaluating the design and development processes, performing trade-studies, determining performance criteria, updating design characteristics, managing cost-schedule-performance risks, ~~estimating costs including life-time~~ costs while tracking and monitoring all of the other tasks involving the system. The Systems Engineer ensures adequate parts are ordered, spares built, oversees production and assembly processes, develops and manages unit and system tests, ensures that the product is properly packaged, transported, delivered with appropriate operational and logistics support, training and preventative and corrective maintenance planning established to ensure the customer receives a quality product, on-time, within-budget that achieves all performance criteria. I was a Systems Engineer for many diverse projects summarized in Appendix 1.

The EPCOR and my local Tubac water systems are rather simple, straightforward systems, when compared to more complex ones; however, all systems require expert and continual attention in many disciplines to reliably and efficiently operate.

Q. How long have you been interested in the matter in this hearing?

A. I appeared before the Commission's Public Comments session two water rate cases ago, including presentation of a paper concerning rate structure, attached herein as Appendix 2 in 2003. In the "last rate case" ACC Docket No W/SW-01303A-08-0227, I was an active intervening party, again submitting Appendix 2. This is my third consecutive water rate case that involves my local water system. In general, my positions remain as descried in great detail in my Testimonies and Briefs in the "last rate case".

In general, my interests in these matters continue to look for viable alternatives and efficiencies in order to reduce Company's costs and the resultant overall rate impacts. Water conservation measures should be used at a primary component for rate design with customers who use the most water should pay higher cost/gallon that those who consume less.

Conservation of our limited surface and ground water resources is critical for survival in Arizona.

Q. Are you employed or paid by any one for your testimony in this proceeding?

A. No. I am doing this as a service to my community, without compensation.

Q. Will you have any witnesses on your behalf?

A. There are some in Tubac who have expressed interest in joining with me. I would like to retain an option to include their witness testimony when presenting my case. During the pre-hearing Procedural Conference, I will provide a witness list if other that I will testify.

1.2 Purpose of this Testimony.

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

A. The purpose of this testimony is to present three issues in that are important for all EPCOR Water Districts including Tubac as discussed in the Sections that follow.

- **Issue 1 – Combine rates for all customers to comply with the Arizona Constitution.**
- **Issue 2 – Provide equitable and fair rates for all lower income customers.**
- **Issue 3 – Conserve water as a Key Driver for Water Volumetric rates.**

Section II - Issue 1

COMBINE RATES FOR ALL CUSTOMERS TO COMPLY WITH THE ARIZONA CONSTITUTION.

2.1 The Arizona Constitution Compliance Requirements.

A. This issue concerns compliance with the Arizona Constitution, in particular Title XV, Section 12 that reads as follows

> ***"Charges for service; discrimination; free or reduced rate transportation***
>
> ***"Section 12. All charges made for service rendered, or to be rendered, by public service corporations within this state shall be just and reasonable, and no discrimination in charges, service, or facilities shall be made between persons or places for rendering a like and contemporaneous service, ..."*** [Emphasis added]

Q. Can you explain why you feel the proposed rate structure fails to comply with the Arizona Constitution?

A. Let us look at the Section 12 and deconstruct its wording.

First, the title indicates "**charges for service**" and "**discrimination**" is in the section. A "free or reduced rate for transportation" does not pertain to the issue at hand.

Second, the first two words, "**ALL charges**" is clear, it means ALL and not some or anything less than "all" charges, specifically the price, cost or expense.[1]

Third, "**made for service rendered, or to be rendered,**" is clear, when a service is provided, such as for water, removal of wastewater, electricity, communications, or natural gas, then this is the charge for a "service" rendered, thus, for the service of delivering water to a customer.[1]

Fourth, **by a public service corporation**," means "a" company, the EPCOR company, and does not mean or imply by administrative districts, e.g., but this is ONE company, one public service corporation, and not many administrative subdivisions, as defined in the Arizona Revised Statutes Title 40, Chapter 2.

[1] *Black's Law Dictionary* (abridged 6th ed.) defines "service charge" as "price, cost or expense."

Fifth, "**shall be**", based on my business and engineering experiences, the verb "shall" always means is required, mandatory, and compulsory to meet a requirement.[2]

Sixth, "**just and reasonable**", means, equitable, legally right, lawful, fair, proper. [3] Further, to emphasize this Constitutional requirement that unreasonable and unjust charges are prohibited and unlawful and that all charges and services to the public shall be "just and reasonable." The Arizona Revised Statutes §40-361A and §40-361C state:

> "A. Charges demanded or received by a public service corporation for any commodity or service shall be just and reasonable. Every unjust or unreasonable charge demanded or received is prohibited and unlawful."
>
> ...
>
> C. All rules and regulations made by a public service corporation affecting or pertaining to its charges or service to the public shall be just and reasonable."

Seventh, "**and no DISCRIMINATION in charges, service or facilities**" means that treatment for charges is not to be different for different persons in terms of charges, service or facilities.[4]

Eight, "**shall be made between PERSONS and PLACES**" means it is mandatory and required that discrimination in charges and services will not be different between "persons" and "places". Utility regulations generally use "persons" for more than one individual, to include business companies, organizations, and all others served by a utility. "Place" is not defined in *Black's* however, does define "place of delivery" to mean: "The place where goods are to be sent by the seller". This clearly can be interpreted to mean the "location of the ratepayer," that is where the water is delivered.

Ninth, "**for rendering a like and contemptuous service**" is for delivery of a "like" and at the same time to customers. "Like" customers, such residential, commercial, fire main water, and other Rate Classes are used by EPCOR; however, all their Rate Classes are not standard or the same throughout the company as discussed below. There are mandatory standards required for the water by various federal, state, county and municipal water authorities, including the US Environmental Protection Agency (EPA), Arizona

---

[2] *Id.* defines "service charge" as "a charge assessed for the performing of a service." Further, "render" is defined as "to transmit or deliver".

[3] *Id,* defines "just" as "legally right; lawful; equitable" and reasonable as "fair; proper; or moderate under the circumstances."

[4] *Id.* defines "discrimination" as "**differential treatment**; esp., a failure to treat all persons equally when no reasonable distinction can be found between those favored and those not favored" that is clarified in the rest of this clause.

Department of Environmental Quality (ADEQ) and for water resources by the Arizona Department of Water Resources (ADWR), that EPCOR and other water utilities are required to meet. These standards apply equally to all "like" customers by Rate Class.

Therefore, based in the above discussion, any deviation from this section of the Arizona Constitution and Arizona Statues is illegal and needs to be remedied. Because of this rate discrimination, some are being over charged, others under charged, right now

2.2 Compliance with a Commission Order.

Q. What has the Commission done to remedy this compliance discrepancy with the Arizona Constitution?

A. In the "last rate case", the Commission ordered the Company (at that time, American Arizona Water Company) to submit a consolidated (meaning one) rate schedule showing the rate classes and categories for all of its administrative districts. The last rate case for these and other water/wastewater districts resulted in Commission Order 71410 in Docket No. W/WS-01303A-08-0227 (page 78 at 14-23), states the following

> ***IT IS FURTHER ORDERED that this docket shall remain open for the limited purpose of consolidation in the Company's next rate case with a separate docket in which a revenue-neutral change to rate design of all Arizona-American Water Company's water districts or other appropriate proposals or all Arizona-American's water and wastewater districts or other appropriate proposals may be considered simultaneously, after appropriate public notice, with appropriate opportunity for informed public comment and participation.***
>
> ***IT IS FURTHER ORDERED that the Company shall commence a dialogue with its customers as soon as practicable, and will initiate town hall-style meetings in all of its service territories to begin communicating with consumers the various impacts of system consolidation in each of those service territories, and to collect feed-back from consumers on such consolidation.*** (Page 78 at 14-23) [Emphasis added]

Q. Did the Company (AAWC or EPCOR) comply with this Order?

A. No. It is clear that NONE of these requirements have been accomplished including the Rate Application in the present rate case that does not comply with consolidated rates for all districts, holding town hall-style meetings, or collecting public comments. EPCOR acts as it this order does not pertain.

2.3 Precedence for Combining or Consolidating Rates from Different Locations.

Q. Is there a precedent for a Commission action to Combine Rates?

A. Yes, in a similar rate case for UNS Electric in Docket No. E-04204A-06-0783, different electricity rates had been being charged for over a half-century in Mohave and Santa Cruz Counties for the residential and small business rate categories. This Party's requested for consolidation of these rate categories (the others rate classes had previously been combined) so the resultant rates would be fair, reasonable, and NOT discriminate between person and place. This was approved by the Commissioners in Decision No. 70360 (27 May 2008) that states:

> ***"IT IS FURTHER ORDERED that UNS Electric, Inc., shall consolidate the rates for customers in Mohave and Santa Cruz Counties into a single rate structure."*** (Decision No. 70360 at 88)

Similarly, the UNS Gas service area is in five different, non-contiguous counties. APS service area is located in ten counties, all with consolidated rates or the same rates in Douglas and Flagstaff. Those electricity and gas rate cases have identical factors to consider for rate consolidation as water and wastewater cases.

2.4 A Key Lesson from Being a Party in the Last Rate Case.

Q. What is a key lesson you learn from being a Party in the "last rate case"?

A. There are several important lessons I learned, including the simple fact, that the Company, staff and RUCO are primarily interested in determination of fair and reasonable "operating" or "*total revenue*" for the Company to meet its operating costs and to permit utility and its stockholders reasonable rate of return on the utility's investment or Return On Investment (ROI). The *total revenue* is what the Commission considers as a fair rate of return for the Company. To determine a fair and reasonable *Total Revenue*, the Commission must first determine the "fair value" of the utility's property, then determine a fair and reasonable rate of return, and apply that figure to the rate base to establish just and reasonable tariffs.

Total Revenue is the primary emphasis during rate cases. This is where almost all of the time, testimony and efforts are expended.

This case is typical. The determination of *total revenue* is where most of the time and efforts has expended to date, conducting a detailed forensic audit of the Test Year

primarily by the Commission Staff and RUCO, to validate the operating expenses of the Company including all expenses such as the cost of postage, improper use of the "p" card (Company credit card), executive retirement bonuses, cleaning tank costs, electricity costs, employee training, fuel oil, security, pipes, etc., etc. This determination of *total revenue* step is what the Procedural Order is what the Parties direct testimony is expected to address. About two weeks later, the Parties are finally to address "*rate structure*".

This case was submitted on 4 January 2014, over a year ago. This implies over 96% of the time during this rate case has been devoted to determining the *total revenue* to operate and about 4% of the rate case time previously has been devoted to "*rate structure*". Looking back on my participation in other electric, natural gas, water and wastewater rate cases, this minimal emphasis on "*rate structure*" continues.

2.5 "Rate Structure" Does Not impact the Company's Bottom Line"

Q. Why isn't there more emphasis on "*rate structure*"?

A. Simply, the *operating revenue* impacts the bottom line of the Company. *Operating Revenue*. It is the revenue obtained based on the "rate structure." The rate structure determines "who" pays and "how much." The "who" is by Rate Class and by Rate Category within a Rate Class. The "how much" is a fixed, or Service Charge, plus a variable, Volumetric rate, based on the amount of water the ratepayer uses or consumes.

Rate Structure impacts only the ratepayers. All ratepayers must pay for their services no matter if the rate structure does or not comply with the Arizona Constitution, prior Commission Orders, and is fair for all ratepayers. The rate structure is how the *operating revenue is* allocated to ratepayers. The above Commission Order requested a "revenue-neutral" consolidate rate schedule.

Q. What has caused the present perturbations and variances in rate structure?

A. This lack of long-term emphasis over the years on "*rate structure*", in my opinion, this is why EPCOR (and other Arizona utilities) now have rate structures that have become unbalanced which leads to being unfair and not reasonable. Looking at the original and updated proposed rate structures submitted by this Company and the prior Company (AAWC), these faults remain without correction in the proposed rate structure. In general, the present rate structure (and rules and regulations) is more prior-company ownership and legacy-dependent that realistic.

Now, THIS rate case is the time to start eliminating this discrimination deficiency by removing these known rate discriminations between various ratepayers by combining rates for the various Rate Class and Rate Category for these four water districts.

2.6 Another Important Lesson Learned Concerning Cost from Other Rate Cases.

Q. What "*rate structure*" lessons have you learned from prior rate cases?

A. All ratepayers seem to feel that **cost** is their major driver for utility rates, and almost always, the lower the cost, the less they will object. Further, any change in the cost, in particular, if it increases for any reason or for any amount they will object en mass as was done in the last rate case, very few ratepayers will not be upset. Conversely, if the rates decrease, those ratepayers will not object, and usually remain silent, hoping it happens.[5]

Thus, **COST is the dominant factor for all ratepayers**.

2.7 The Two "rate components" and Fees and Charges Impact Ratepayer's Cost.

Q. What are the two "rate components" that directly involve ratepayers.

A. Rates have two components, a fixed Service Charge and a consumption-dependent Volumetric rate charge measured in thousands of gallons consumed during a billing cycle. All ratepayers pay a fixed monthly charge to connect to the Company's water lines, the Service Charge and a variable Volumetric rate, in dollars per thousand of gallons each billing period, usually monthly. This is also described as a consumption charge.

Q. What are the Fees and Charges that Impact Ratepayers?

A. The utility requires Fees and Charges for various customer actions, such as "responding to a "re-read" a meter. In the last rate case, each district had a different set of fees and charges that I objected should be equal, for example, why should there be a different fee for a bounced check in different districts?

The present rate case corrects this by proposing consolidated set of Fees and Charges for all districts. At least I've impacted a small part of consolidating costs.

2.8 Some Rate Classes or Rate Categories are NOT included in this Rate Case.

Q. Why do some customers in various districts NOT have rate increases?

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A. There are multiple Rate Classes, where similar customers have similar demands and costs for the Company. In this case, the following Rate Classes are indicated in the EPCOR Application, as shown in Table 2.8-1 below.

Table 2.8-1 – Rate Classes in This and the Last Rate Case.

Water District / Rate Class	This Rate Case				"Last Rate Case"			
	Tubac	Mohave	Paradise Valley	Sun City West	Sun City	Aqua Fria	Anthem	Havasu
Residential	Yes	Yes	Yes	Yes				
Commercial	Yes	Yes	Yes	Yes				
OPA[6]		Yes				Yes		
Apartment		Yes						
Irrigation *			Yes					
Sale for Resale			Yes		Yes	Yes	Yes	
Misc. Non-potable					Yes	Yes	Yes	
Public Interruptible				Yes				
CAP Raw				Yes				
Private (fire) Hydrant[7]		Yes	Yes	Yes	Yes	Yes	Yes	

- = For Paradise Valley "irrigation water" used in public street median.

In addition, some rates in various Rate Categories were NOT included in the Consolidated rate computer programs provided by AAWC in the "last rate case". These are shown in Table 2.8-2 below which equaled about 3% of the total Company Revenue:

Table 2.8-2 – Rates Classes and Categories Not Considered when Consolidating Rates in The Last Rate Case.

Water District / Rate Class	Tubac	Mohave	Paradise Valley	Sun City West	Sun City	Aqua Fria	Anthem	Havasu
Paradise Valley Country Club			P2PVC					
Public Interruptible					A5M1			
Arizona Water Contract						C2M3		
OWU-PI Surprise						C5M1		
Wholesale (Phoenix) OWU							E7M2	
Bullhead Residential Apartment		G1M2A to M2M2G						
Havasau Residential Apartment								H1M3D, F, H, J, to M, P

Note: These were considered by this party in the Consolidated Rates in Appendix 3, herein.

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[6] Although not defined, in other rate cases OPA is used as a rate class for government facilities, such as federal, state county or local municipal government facilities including public schools. Justification for one water district to have this rate class when other districts have similar facilities is neither fair nor reasonable for other water districts with similar facilities. Why do some districts include government facilities have this rate class and others do not? This is not clear.

[7] A "Private Hydrant" rate class seems unusual, since all districts have fire hydrants, why aren't all fire departments treated similarly, as required by our Constitution? This is a mystery.

From Table 2.8-2, we see that only Paradise Valley and Mohave water districts in the present rate case were excluded the above rate categories in this rate case; however, all the other districts in the last rate case had such exceptions when AAWC presented consolidated rate software. These rate categories did not have any rate increases in the last rate case software used to develop consolidated rates.[8]

It is noted the Paradise Valley Country Club did NOT have any rate increase in the last rate case revenue remained constant at $278,795.67.[9] Why did a county club have unchanged rates in two consecutive rate cases when most others rates largely increased?

The Residential Apartments Rate Class is a bit more complex wherein rates are distributed over multiple residences with maybe one water meter for the entire complex or a building. These Mohave Rate Categories are significant; with over $350,000 dollars in unchanged revenue without a rate increase.

Omitting rate increases for "special" situations appears noncompliant with our Arizona Constitution. In fact, why shouldn't all residential apartment residents have the same rate increases when all other rate paying customers have a rate increase?

Thus, these two tables show that not all ratepayers were considered in rate cases submitted by both AAWC and EPCOR. This appears to violate the Arizona Constitution.

There are no issues with the Residential and Commercial Rate Classes, found in all these water districts in this case. In the last rate case however, the additional Apartment, Irrigation, and Private Hydrant are unique to one water district. Are not there fire departments, apartments, and fire hydrants in all districts?

In the last rate case consolidated rates shown in Appendix C, and assumed here too, why are some customers ignored and not included in a rate case?

2.9 The Company's Position on Combing or Consolidating Rates.

Q. What is the Company's position on combining rates for the districts?

A. Based on the bifurcation from the last rate case, now ACC Docket No. W/SW-01303A-09-0343, EPCOR has submitted detailed testimony on 19 September 2014, that very strongly supports combining or consolidating rates for all wastewater districts.

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[8] In the "last rate case", AAWC provided over 20 integrated Microsoft Excel worksheets (listed in Appendix 3) for all water ratepayers in all water districts. This table shows the individual rate categories that were excluded and annotated as "NOT CONSOLIDATED" and all had zero percent rate increases except for "Sun City Interruptible – Peoria" (rate category A5M1), which increased this minimal volume rate class to $105.72 or 4.51%, which could easily be considered *de minus*.

[9] The AAWC spreadsheet also showed a consumption of 15,453,917 gallons.

Further, in response to a Commissioner's questions, EPCOR filed a letter of 8 December 2014 in the above docket stated:

> *"EPCOR's responses are as follows:*
> *1.* ***EPCOR has supported and continues to support consolidation*** *because it will* ***provide our customers with fair, efficient and predictable rates.***
> *2.* ***EPCOR's position has not changed.****"*

It also should be noted that the AAWC Chief Executive Officer, several times, in the last rate case, testified that he supported consolidated rates. Thus, my position supports both Companies' views.

The same rationale is reflected my testimony, briefs and exceptions filings in the last rate case that emphasized the benefits for the Company, staff and RUCO and most importantly, fairness, equality, and reasonableness for ALL ratepayers. Any other approach for the design of rate structure, in my opinion, is contrary to the Arizona Constitution and specifically, does not comply with the Commission's Orders in the last rate case.

The ongoing wastewater rate case in Docket W/SW-01303A-09-0343 now covers all the EPCOR wastewater districts. On 8 August 2014, EPCOR filed in that case, its plan to "consolidated" wastewater rate schedules for its wastewater administrative districts. This EPCOR filing and subsequent testimonial filings presents detailed arguments and rationale that describe the numerous and significant benefits of rate consolidation for these ratepayers, the Company and accounting efficiencies for both Staff and RUCO. This wastewater case has the same rate consolidation factors and benefits that directly pertain to EPCOR's water administrative districts in this rate case.

Applying rate consolidation for ALL administrative districts also complies with the requirements of the Arizona Constitution, Title XV, Section 12, that requires charges (rates) to be just and reasonable and shall not discriminate between "persons and places for rendering a like contemporaneous service."

Previously, on 25 April 2014, Mr. Magruder requested that a consolidated water rate schedule be in the present docket to comply with Commission Decision and Order No. 71410 of 8 December 2009 on page 78.[10] The Commission ordered the next rate case to

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[10] The Administrative Law Judge subsequently denied this request.

include consolidated water and waste water rate schedules and customer town-hall dialog sessions in all service areas prior to hearings in my 25 April 2014 filing. The Company has not obeyed this order.

2.10 A Sample Consolidated Rate Schedule.

Q. Have you developed a Consolidated Rate Schedule for this Case?

A. Not for this case, however, during the course of the last rate case, I submitted complete rate structures using the Company's software that involved over 20 inter-linked massive Microsoft Excel databases. After several iterations, considering all Rate Classes and Rate Categories (except those in Table 2.8-2 above) or about 97% of the customers, I design and prepared a consolidated rate structure and schedules for all eight water districts. This Consolidated Rate Structure I is in Appendix 3. One can see the resultant three pages the entire rate structure for all eight water districts.[11]

If this kind of rate schedule, like Appendix 3 herein, were adopted, in the future rate cases could be much smoother. For a Company to submit a rate case, it could simply by multiplying all the rates (Customer Service and Volumetric) by one number that represented the change in Total Revenue, say 1.06 for a six percent rate increase. This is simple, fair and reasonable, and easy to understand and this process provides all customers with easy to understand view for "fair and reasonable" rate changes. Then, a future emphasis on *Total Revenue* will continue to be an important phase in future rate cases, as the complex and unfair, unreasonable and "rate shock" increases throughout. The proposed rate structures customer concerns will be minimized.

2.11 Comparing the EPCOR Proposed Rates.

Q. Have you compared the proposed rates for the water districts in this case?

A. For residential rates, first two Tiers, shown in Table 2.11-1, compares the EPCOR proposed rates with the present rates. It is noted that the greatest proposed cost increases are for the Tubac district between $47.19 (or **88.1%)** and $82.49 (or **56.5%)** while the other three locations have increases between $9.06 (or **9.7%)** and $23.41 (or **9.7%)** respectively.

[11] In the "last rate case", Magruder Notice of Filing Consolidated Rate Schedules" of 25 June 2010, in Dockets Nos. W-01303A-09-0343 and SW-01303A-09-0343, Appendix A, at 3-6

This Table 2-11-1 is for an Average water user. The Average is when the total water usage for a Category is divided by the number of customers in that Category.

Table 2.11-1 Comparison of EPCOR Proposed Monthly Residential COST for Four Locations in this Rate Case for the Monthly AVERAGE Usage
(5/8 & 3/4 and 1 inch rate categories)

Monthly AVERAGE Usage	5/8 and 3/4-inch Residential Service				1-inch Residential Service			
	Tubac	Sun City	Paradise Valley	Mohave	Tubac	Sun City	Paradise Valley	Mohave
In gallons	8,348	7,203	19,271	6,800	13,838	14, 786	55,400	23,601
Present COST	$53.57	$17.35	$52.30	$20.63	$146.05	$43.44	$165.40	$80.90
Proposed COST Increase	**+$47.19**	**+$3.82**	**+$5.06**	**+$9.06**	**+$82.49**	**+$8.47**	**+$16.05**	**+$23.41**
Proposed COST	*$101.76*	*$21.17*	*$57.36*	*$29.69*	*$228.54*	*$51.91*	*$181.45*	*$104.31*
Percent Increase in COST	**+88.1%**	**+22.0%**	**+9.7%**	**+43.9%**	**+56.5%**	**+19.5%**	**+9.7%**	**+28.7%**

Since the predominance of customer water usage is skewed, in what would be called a Poison probability distribution towards the higher user ends of the distribution tail. Average usage outcomes show a higher amount of water usage than using the Median usage. The Median user is one in the middle, where 50% use more and 50% use less water.

Median water usage is a better measure of water consumption than for an Average customer because it is not skewed to the right of the distribution curve.

Table 2.11-2 shows same comparison for the Median usage data instead a monthly Average. This table is more realistic than the previous Table 2.11-1; however, most customers (and the Commissioners) seem to understand and use the Average User since they seem to not understand the differences between the Average and the Median.

Similar results are shown in Table 2.11-2, with the Tubac district again having the highest cost increases in terms of dollars and percentages, varying from **$35.79 to $82.49** (from **56.5%** to **85.0% increases**) while the other districts vary between **$3.11 and $18.62** (from **8.5% to 45.6%)** per month.

These are clearly not equitable or fair rate changes.

Table 2.11-2 Comparison of EPCOR Proposed Monthly Residential COST for Four Locations in this Rate Case for Monthly MEDIAN Usage
(5/8 & 3/4 and 1 inch rate categories)

Monthly MEDIAN Usage	5/8 and 3/4-inch Residential Service				1-inch Residential Service			
	Tubac	Sun City	Paradise Valley	Mohave	Tubac	Sun City	Paradise Valley	Mohave
In gallons	5,000	6,000	10,000	5,000	13,838	7,000	37,000	11,000
Present COST	$42.10	$15.72	$36.65	$17.32	$146.05	$30.21	$116.45	$47.74
Proposed COST Increase	**+$35.79**	**+$3.46**	**+$3.11**	**+$7.87**	**+$82.49**	**+$6.68**	**+$9.96**	**+$18.62**
Proposed COST	***$77.89***	***$19.18***	***$39.76***	***$25.19***	***$228.54***	***$36.89***	***$126.41***	***$66.36***
Percent Increase in COST	**+85.0%**	**+22.0%**	**+8.5%**	**+45.6%**	**+56.5%**	**+22.1%**	**+8.6%**	**+39.0%**

Tables 2.11-1 and 2.11-2 showed the present customer costs versus the proposed Average and Median rate increases and total proposed customer costs.

The next two tables show the breakout of proposed fixed Service Charge and Volumetric rate changes, the two components of the ratepayer's total cost.

The Tubac ACRM surcharge has been included in the proposed rates. All the other districts with Arsenic costs have already had their arsenic costs incorporated into their rates. Table 2.11-3 also compares the Average and the Median water usages for these Rate Categories.

It is interesting to note that both Mohave and Tubac have the same Median monthly usages; however, the Service Charge is three-times higher for Tubac than for Mohave for both the small (5/8 & 3/4-inch) and larger (1-inch) Rate Categories. The cause(s) for such a significant difference cannot nor has not been rationalized. This significant difference for Service Charges just is not fair or reasonable.

Table 2.11-3 below summarizes the Service Charge changes from the present to the proposed Service Charge.

When comparing the four water districts for these two Residential Categories, Tubac again has, by far, the highest increases in Service Charges.

Table 2.11-3 Comparison of EPCOR Proposed Residential SERVICE CHARGES for Four Locations
(5/8 & 3/4 and 1 inch rate categories)

	5/8 and 3/4-inch Residential Service				1-inch Residential Service			
Monthly	Tubac	Sun City	Paradise Valley	Mohave	Tubac	Sun City	Paradise Valley	Mohave
Average Usage (gals)	8,348	7,203	19,271	6,800	13,838	14, 786	55,400	23,601
Median Usage (gals)	5,000	6,000	10,000	5,000	10,000	7,000	37,000	11,000
Present Service Charge	$27.40 +$3.56 ACRM	$8.76	$25.15	$11.00	$74.10 +$10.68 ACRM	$21.89	$90.54	$27.50
Proposed Service Charge Increase	**+$19.95**	**+$1.94**	**+$2.12**	**+$4.54**	**+$35.82**	**+$4.87**	**+$7.63**	**+41.3%**
Proposed Cost	***$48.24***	***$10.70***	***$27.27***	***$15.54***	***$120.60***	***$26.76***	***$98.17***	***$38.86***
Percent Increase	**+64.5%**	**+22.1%**	**+8.4%**	**+41.2%**	**+42.2%**	**+22.1%**	**+8.4%**	**+28.9%**

For a comparison of the Volumetric Rates, one needs to consider the Tiers or rate blocks (jumps) for consumption as break point separating tiers. Table 2.11-4 shows there is no consistency between these consumption charges, in terms of the number or size of each tier, or cost This Table begs the following questions:

a. Why is the number of tiers different for the different service areas?

b. Why is the Volumetric rates the same for the smaller (5/8 & 3/4-inch) and larger (1-inch) Rate Categories in Sun City and Paradise Valley but vary considerably for others?

c. Why does the spread for the tiers change from 1,000 gallons to 40,000 gallons?

d. Why are the ratepayers' costs so different for each water district, varying from **$0.75** in Sun City to **$10.81** (1,441% higher) in Tubac for same 1,000 gallons of water?

e. Why can't a consolidated or combined rate schedule, as proposed in the last rate case, provide a basis or staring point to decide rates than a mixed-mashed table below?

f. Why is the spread between Average and Median usage much greater for Paradise Valley than any of the other districts? [This difference is due to to the skewness of the water distribution curve.]

Table 2.11-4 Comparison of EPCOR Proposed Residential VOLUMETRIC CHARGE For Four Locations

(5/8 & ¾ and 1 inch rate categories)

	5/8 and3/4-inch Residential Service				1-inch Residential Service			
Monthly	Tubac	Sun City	Paradise Valley	Mohave	Tubac	Sun City	Paradise Valley	Mohave
Average Usage	8,348	7,203	19,271	6,800	13,838	14, 786	55,400	23,601
Median Usage	5,000	6,000	10,000	5,000	10,000	7,000	37,000	11,000
Present 1st Tier	$1.90 0 to 3k	$0.7297 0k-1k	$1.05 0k-5k	$0.88 0k-3k	$4.00 0k-35k	$0.7297 0k-1k	$1.05 0k-5k	$1.84 0k-15k
Present 2nd Tier	$3.00 3k-10k	$1.0702 1k-3k	$1.25 5k-15k	$1.84 3k-10k	$6.00 >35k	$1.0702 1k-3k	$1.25 5k-15k	$3.00 >15k
Present 3rd Tier	$4.00 10k-20k	$1.3621 3k-9k	$2.20 15k-40k	$3.00 >10k	Not used	$1.3621 3k-9k	$2.20 15k-40k	Not used
Present 4th Tier	$6.00 <20k	$1.6539 9k-12k	$2.75 40k-80k	Not used	Not used	$1.6539 9k-12k	$2.75 40k-80k	Not used
Present 5th Tier	Not used	1.9896 >12k	$3.2259 >80k	Not used	Not used	1.9896 >12k	$3.2259 >80k	Not used
Proposed 1st Tier	**$5.33** **0 to 3k**	$0.75 0-1k	$1.408 0k-5k	$1.55 0k-3k	**$7.60** **0k-35k**	$0.75 0-1k	$1.1408 0-5k	$2.50 0k-15k
Proposed 2nd Tier	**$6.83** **3k-10k**	$1.3702 1k-3k	$1.3581 5k-15k	$2.50 3k-10k	**$9.38** **>35k**	$1.3702 1k-3k	$1.3581 5k-15k	$3.225 >15k
Proposed 3rd Tier	**$8.18** **10k-20k**	$1.6602 3k-9k	$2.3903 15k-40k	$3.225 >10k	Not used	$1.6602 3k-9k	$2.3903 15k-40k	Not used
Proposed 4th Tier	**$10.81** **>20k**	$1.9002 9k-12k	$2.9879 40k-80k	Not used	Not Used	$1.9002 9k-12k	$2.9879 40k-80k	Not Used
Proposed 5th Tier	Not Used	$2.1202 >12k	$3.5049 >80k	Not used	Not used	$2.1202 >12k	$3.5049 >80k	Not used

* = Includes a Low Income Surcharge of $0.6810 per 1000 gallons.

Uniquely, there is a surcharge ($0.6810) for a Low Income Program in Tubac that increases their highest Tier rates to $10.81 per 1,000 gallons. This is 308% higher that that for the next highest volumetric tier (=Tubac Third Tier at $10.81 divided by Paradise Valley Fifth Tier at $3.5049). Some districts have just two tiers, other have five tiers. Some have the same rates for the smaller and larger connections. Others are different. Why?

NONE of this complies with our Arizona State Constitution or the Arizona Revised Statutes. **Fair and reasonable rates do not discriminate between "person" and place**.

2.12 Fairness of the PRESENT Rates and Customer Costs.

Q. Are the Present EPCOR Rates Fair and Equitable for Districts in this Case?

A. No. The present rates and customer costs are summarized in the Tables above based on EPCOR's data in revised H-4 Schedules, These tables all show that there are

wide variations in the present rates in these service areas. For smallest (5/8 & 3/4-inch service) residential customers, Tubac used 8,343 gallons per month, less than half the monthly Average water usage for Paradise Valley. However, the Tubac customer costs are higher than Paradise Valley with over twice the Tubac consumption. The present rates for Tubac are also more than twice those of the Sun City and Mohave for similar water usages. These wide variations exist for **all** Rate Classes and Categories.

The **present** rates clearly discriminate based on "**location**" and they are neither fair nor reasonable. There is no reason, other than legacy and lack of diligence by the Commission, RUCO and the various Companies (Citizens, AAWC and EPCOR) over the last half-century, when these "individual" companies were bought out by a larger company. These "districts" have retained a profit-center approach to do business in Arizona.

Maybe this is why we have had three different owners in the past decade!

2.13 Fairness of the PROPOSED Rates and Customer Costs.

Q. Are the Proposed EPCOR Rates Fair and Equitable for Districts in this Case?

A. The proposed rate increases show correspondingly unfair rates. The Tubac proposed cost increase of 88.1%, twice the percentage of smallest residential Rate Category. In other service areas, increases from 9.7% and 43.9% are proposed.

This is not fair or reasonable for the same product, same service, by the same company. Similar differences occur for the next larger Rate Categories.

The **proposed** customer costs and rate increases discriminate based on "**location**."

2.14 Consumption has Decreased Since the Last Rate Case, Especially in Tubac.

Q. What are the changes in consumption since the Last Rate Case?

A. The Company should note that the average water consumption for most districts' Rate Categories has decreased, especially in the Tubac service area where the usage in the dominant residential customer category (5/8 & 3/4-Inch) has decreased from 11,740 gallons/month to an average usage of 8,348 gallons/month in the past four years. This is a reduction of 3,392 gallons/month or 28.9%. This is a substantial decrease in water usage.

2.15 The Impacts on Rates in Tubac Due to its 28.9% Decrease in Consumption.

Q. What is the Impacts the 28.9% Decrease in Water Consumption in Tubac?

A. The number of customers (e.g., water meters) has slightly increased from 553 to 598, or 45 customers (meters). This is an 8.13% increase in the number of customers.

There are presently 510 Tubac residential customers or 85.3% of this customer base is residential. Mostly small businesses are here. Only 18 customers use a 2-inch service, the largest in Tubac. There are no large commercial activities using EPCOR's services. Thus, with an 8.13% increase in meters one might be believe there should be approximately an 8% or so increase in water consumption.

Since the last rate case, there has been 28.9% decrease in water consumption by the small residential customers.

Many new "exempt" (<35 gallons/minute) water wells have been dug in the Tubac service area, mostly by customers who did not want to pay the proposed high rates and implemented in the last rate case. In that case, I pleaded with the Company to enforce A.R.S. §45-454, to prohibit new wells, in the Tubac service area. They declined to act.

EPCOR now has 8.13% more customers, water consumption has decreased by 28.9%, and as customers continue to dug wells to offset the higher costs from rate cases.

This trend cannot continue or the rates will continue to skyrocket as consumption continues to decline. The only way rates could be stable would be for EPCOR to seriously decrease its expenses.

EPCOR will always be behind the profit curve if this trend continues.

2.16 Conclusion for Issue 1

Q. What is your conclusions concerning fair and reasonable rates in this case?

A. The present rates in the prior "open" rate case do NOT comply with the Arizona Constitution nor do the proposed rates proposed by EPCOR comply with a Commission Order. All customers in each district are not included. The high rates cause customers to really reduce water consumption. With ever decreasing revenue, EPCOR must increase its efficiency, use ARS §45-454, be legally compliant, to offset this trend, to make a profit.

2.17 Recommendations for Issue 1.

Q. What are your recommendations concerning fairness and reasonable rates?

A. It is strongly urged and recommended, based on evidence herein, that the rates and charges in the four districts are combined into a single Rate Structure in this case and during the next rate case, the remaining districts rates be combined. Appendix 3 did this and met the Company's tot al revenue requirements. .

Section III - Issue 2

PROVIDE EQUITABLE AND FAIR RATES FOR ALL LOWER INCOME CUSTOMERS

3.1 Rates for Lower-Income Ratepayers.

Q. Do you feel there should be lower rates for those with low income and why?

A. Yes. Water is required for all to live in sanitary conditions and is essential for life. A standard amount of water should be available for all who live in Arizona's desert environment. Those with the lowest incomes should be able to obtain this amount of water at very low rates, which I will call a "water lifeline" funded by higher income ratepayers.

During the last rate case, the Company testified that a human needs about 300 to 500 gallons a month, for basic use for drinking, cooking, washing and sanitary services. Using this as a minimum standard, if all residential ratepayers had very low rates for its first 3,000 gallons or so, of water, many times the minimum standard amount of water, this would provide, what I call, a "water lifeline" for all ratepayers. All customers automatically will receive the benefit of this "lifeline" rate. The higher consuming ratepayers will make up revenue "lost" from this "life line" rate category. This appears fair and reasonable and appears to meet the rate discrimination clause of our Arizona Constitution.

3.2 Low Income Programs by Other Utilities.

Q. Do other utilities have low-income rates?

A. Yes. Most utilities have low-income rates. For example, in Appendix 4, utilities in Santa Cruz and Pima County have low-income rates that include water, electric, wastewater, landline telephone (and Internet), and natural gas services. In general, most all of these utilities provide low-income utility rates for customers at the 130% of the effective poverty level, as shown in the table in these two examples.

When completing a tax return, IRS Form 1040 line 22, provides the "Gross Income" for a taxpayer's family. Using Gross Income and the number of people in the household (from the number of dependents), I enter this table to see if they qualify for low-income rates. Highlighted for a family of four, their Gross Income needs to be less than $35,325. An individual in Arizona, earning at the minimum wage in Arizona receives about $16,000

a year. The median Arizona household income is $53,891.[12] I provide this handout to those who meet these two requirements.

This is a simple process. I've given this to hundreds in Pima and Santa Cruz County. It was provided to all H&R Block offices and many AARP/VITA sites use the Pima County. Now I am using the Santa Cruz County form when doing tax returns in Santa Cruz County as an AARP/VITA quality review and Instructor volunteer in my county.

An "Application" always seems to be required to receive low-income utility rates.

3.3 Successful Implementation of Low-Income Rates.

Q. Can you comment on the successful implementation of low-income rates?

A. In general, based on over a dozen years of refining Appendix 4 including responses from returning taxpayers and preparers, very few qualified ratepayers ever apply for or receive low-income rates. During a rate case, I determined less than 5% of that utility's ratepayers in my county were receiving low-income rates, where over 30% of the families live below the poverty level (100%). Considerably less than one-in-six (<18%) of those eligible actually receive low-income rates.

Our county annual unemployment rates are seasonal, varying between 12% and 20%, due to the seasonal nature of our local job market, the multi-billion dollar fresh produce industry. I feel execution of EPCOR's proposed Low-Income Plan won't succeed.

Q. Why do you feel that the low-income rate programs are unsuccessful?

A. Simply, because an Application is required.

Some will not accept my "handout" for lower utility rates. In particular, an older person Social Security prides himself or herself by never needing "handouts." Others seem eager, but when queried the following year, they were not provided an Application after calling or were asked for personal financial information that was beyond their understanding.

However, the most common reason for lower-income families not receiving these rates is that they do not know they exist or how to get them. This is the reason I developed this handout in Appendix 4.

The requirement for an Application hinders those who most deserve low-income rates from receiving same. An Application negates a goal for equitable low-income rates.

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[12] *Green Valley News,* 18 January 2015, "Robber Barons, past and present" by Ed Lord, p. A7.

3.4 The Same Low-Income Rate Program for All EPCOR Ratepayers.

Q. Should All Customers have the Same Low-Income Rate Program?

A. Yes, because any other way to accomplish this goal would be discriminatory and not comply with the Arizona Constitution as discussed in Issue 1.

3.5 The Proposed Low-Income Rates.

Q. What has the Company proposed for its low-rate customers?

A. As an example, in the PROPOSED "Rules and Regulations" in EPCOR Rate Case Application, for Tubac district, we read:

> *"**Low Income Program** - Monthly Low Income credit of $6.21 is available in the Tubac Water district bring the basic service charge down from $15.54 to $9.33. Requires completion of a Low Income Program Application. Program is restricted to the first 1,000 eligible residential customers on 5/8 x 3/4 inch meters in the Tubac Water district. Applications must swear that he/she has an annual income below the threshold. The threshold is below 150% of the federal low income guidelines as periodically revised. Applicant may not be claimed as a dependent on another person's tax return. Applicant must reapply each time moving residences. Refusal or failure to provide acceptable documentation of eligibility, upon request, shall result in removal from the low-income program. Rebilling of customers upon the otherwise applicable rates schedule may occur for periods of ineligibility previously billed under the low-income tariff. Annual income means the value of all money and non-cash benefits available for living expenses, from all sources, both taxable and non-taxable, before deductions, for all people who live with the applicant."*
> [Tubac Water District, General Water Rate, 1st Revised Sheet No. 1b (PROPOSED)]

A note at the bottom of the previous page in this General Water Rate section, states:

> *"Note: * Low Income Program details are noted in the Terms and Conditions section for General Water Rates. Upper tier rate for residential and commercial customers is comprised of $9.500 approved rate plus $0.6810 for the Low Income Surcharge for a total of $10.1810."*
> [Tubac Water District, General Water Rate, 1st Revised Sheet No. 1 (PROPOSED)]

Additional information concerning low-income programs has been requested from the Company in a Data Request that will be discussed in a later filing.

3.6 Implementation of the Proposed Low Income Program.

Q. Do you see any problems implementing this proposed Low Income Program in Tubac?

A. Yes, as proposed, this process does not pass a common sense test. It requires an Application. It does not tell one how to get the Application (from a website is not an

inclusive response since over 30% of Arizona households are without Internet access, especially low-income families. The "threshold" is neither clear nor defined. It requires a potential applicant to "**swear**" that their family income is below the "threshold". It is noted that a tax return signature states one is liable for perjury if the return is not truthful.

Using a tax return's "gross income" to determine family income is easy and clear.

The term "acceptable documentation" is not clear or defined.

There are less than 600 ratepayers in the Tubac district. Limiting low-income rates to the "first 1,000 ratepayers" is nonsense. Any limitation on the number of low-income customers is not fair or justified and could be discriminatory.

The service charge indicated is not in effect. The present Tubac Water Basic Service Charge is $24.70 for the residential 5/8 & 3/4-inch rate category, thus this part of the proposed low-income program is **erroneous**. The service charge was $15.54 before the last rate case, and it was raised to $24.70 now, and EPCOR has proposed to increase to $48.24, tripling from before 2010, and nearly doubling since the last rate case in 2010. There is NO impact on volumetric rates in the EPCOR Low Income Program.

Sixth, the method for collecting the "lost revenue" for the low-income ratepayers has no basis. EPCOR proposed to add and additional 68.1 cents/1000 gallons for the highest Tier ratepayers to cover this lost revenue. This is very high compared to the amount of predicted lost revenue for this district. This "arbitrary and capacious" approach is unfair for those in just the highest tier to pay for the low-income ratepayers, without reason.

This EPCOR-proposed Low Rate Program should be rejected (dismissed) and a realistic and beneficial Low-Income approach filed that is fair and reasonable!

3.7 Implementation of the Lifeline Rate for All Ratepayers.

Q. Would the Lifeline Rate resolve all of the above issues?

A. Yes, as there would be 'no application" necessary, there would be no annual changing "threshold", there would be no perjury or swearing required for these rates, no tax returns or other documentation to be reviewed (with cost savings for the Company), no limitations based on location, low income rates automatically involve volumetric and not the Service Charge (thus no separate book keeping for the Company), and any lost revenue would be spread across ALL rate classes and categories, in all Second and higher Tiers.

Q. Would the Lifeline Rate include a Lower Service Charge, too?

A. Of course. One goal of the Guidelines in 4.8 below is to also reduce Service Charges, maybe to the same degree as the Volumetric rates.

As shown in Appendix 3, I kept using lower First Tier Service Charges, with a goal to have a low-income ratepayer to cost no more than 25 to 30 dollars a month for Water. If the Volumetric rate were, say $1.25/1000 gallons, for a use of 3,000 gallons, the Volumetric cost would be $3.75. In order to keep this low-income worker billing statement below $25.00, his Service Charge would be $21.25 (= $25.00-$3.75). This should be fair and reasonable.

3.8 Conclusion for Issue 2.

Q. What is your conclusions concerning lower income rates in this case?

A. Simply, the proposed low-rate programs is unsatisfactory and will not adequately nor equitably achieve the goals for lower income ratepayers.

3.9 Recommendation for Issue 2.

Q. What are your recommendations for lower income rates?

A. Simply, that a low First Tier for all residential rate categories and the First Tier for the lowest two rate commercial rate categories be used instead of that proposed. The recommendations for Issue 3 provide for this kind of rate structure.

Section IV Issue 3

WATER CONSERVATION IS A KEY RATE DRIVER FOR VOLUMETRIC RATES

4.1 Arizona has a Serious Water Resource Challenge.

Q. Why does Arizona have a Challenge in Managing its Water Resources?

A. At present, we daily read of issues that involve decreasing water resources in Arizona due to a long-term drought, some say over 14-years long. In the past decade, higher temperatures have occurred throughout the state with the year 2014 being the highest since 1890. As population increases, without reducing demand on water resources, the ground water table continues to go down, locally up to nearly four-feet a year (about an inch a week). Reduced snowfall in the seven states along the Colorado River has greatly reduced the water supplies from that river. Further, the multi-state compact that governs the Colorado calls for Arizona to be the first state to have its allotment curtailed if the water shortage situation requires. Without even referring to "climate change", all indications are that water resources are diminishing and that something must be done or we will be in serious troubles.

The legislature has greatly reduced funding for the Arizona Department of Water Resources, to the level that no Active Management Areas have a dedicated manager or even an office, permits cannot be completely audited to ensure 100-year water resources are adequate as required by law, well water-level meters are read less often, and other required operations by this department are now being omitted due to lack of funding.

The legislature also has reduced funding for the Corporation Commission that has resulted in hearing delays or lower priorities in decision making. This is hard to believe. The Commission is "revenue positive" but gives its excess revenue to the General Fund.

Q. What does this mean with respect to this case?

A. We all have to manage our water resources more diligently to ensure that future generations will have adequate water resources for a reasonable quality of life.

In the *Arizona Daily News* for Monday, 19 January 2015, the headline reads:

> ***"Study says Colo. River adds $1.4T to region - Arizona's economy derives $185B, 2.25 million jobs from waterway"***

And this article continues below:

"Various studies estimate that the Colorado River... will see its flow reduced by 5 percent to 40 percent by 2050."

- *A 10 percent reduction in river flows would eliminate 1.6 million jobs and $143 million in gross state products over the seven-state Colorado River Basin.*
- *A cutback of 25 percent would cost 4 million jobs and $385 million in gross state product.*
- *A 50 percent decrease would kill 8 million basin wide jobs and cost $717 million in gross state product."*

"The river's flows have dropped up to 20 percent since 2000 without major job losses, but only because its reservoirs have provided enough water to keep it flowing to users, said Ann Tartre, the group's director of corporation partnerships."

"Arizona which draws 40 percent to 50 percent of its water from the Colorado, would see some of the sharpest impacts, edging Colorado in job losses and trailing slightly in gross state product declines."[13]

It is very clear that there are serious, significant and possible destructive future impacts if water use is not changed by all seven states. Thus, the State of Arizona, through its departments and this Commission must do all it can to minimize future water use. The Commission has implemented ADWR's "best practices" but needs to do much more and its other tool is to control water usage by increasing the cost of water to users, while not exceeding a Company's "*total revenue*".

4.2 The Company Can and Must Reduce Water Consumption and Waste.

Q. What can the Company do to reduce water consumption?

A. There are many ways the company can reduce water use and consumption, such as its implementation of the ADWR "Best Practices" that were required from the "last rate case." The Company provides valuable water conservation education in many forms of aids to *assist* ratepayers make a behavioral decision to use less water. I have submitted a Data Request for the Company's performance in implementing these "Best Practices" that will be included in a later filing.

[13] *Arizona Daily News,* pages A1 and A4. This study, "Protect the Flows" quoted above, was conducted by the L. William Seidman Research Institute at the Arizona State University's W.P. Carey School of Business. This study involved a diverse group of regional experts. Last week the headlines concerned the Secretary of Agriculture flying over the Verde Valley watershed, and the article discussed three USDA grants provided to assess various agriculture water conservation projects.

Q. Can the Company reduce water leakage?

A. The Company can do more to reduce water losses and leakage. The Commission's usual goal for water leakage is not to exceed ten (10) percent for a "district"; however, this may need to be adjusted to a lower goal, such as 8 percent or lower, with some expense impacts to "plug the leaks". This can reduce water losses from the wells to the customer.

The Company must, on a much finer scale than at the district-level, establish and implement effective and water leak management programs. Some districts have tens of thousands of "meters" (another word for customers. Measuring and reporting water leakage for smaller customer groups, for example sized at 1,000 customers or less, would give a more objective, performance measures for leakage. As is common in other business practices, plotting the "trend" of each smaller customer group could identify more leaks, including smaller ones, faster than at the "district level." Further, the Company could use this refined leakage data to better prioritize its repair actions. EPCOR's deployment of "Smart" water meters could be just a first step towards very effective leak control management; however, it is expected leaks may increase as systems get older.

Q. Does the Company consider Quality Management and the Environment when making decisions?

A. No. As shown in Appendix 2, written in 2003, this utility and most others, are NOT ISO 9000 (Quality Management) or ISO 14400 (Environment Management) certified. Many utilities have these international acclaimed certifications that improved their business practices and make their operations environmental friendly. EPCOR it appears has no such certifications. Having been through these certifications while working for a first-class aerospace company, noting our better performance after, when compared to, before certification was remarkable. Frankly, we thought we were the best "before" but going though the ISO certification processes was an eye-opener, especially when "self-corrective" mechanisms became routine. Problems disappeared, performance got even better. We were all happy (afterward) because the ISO certification processes required extensive looking inside the organizational structure, streamlining process and workflow, and developing qualitatively and quantitatively near-real time performance measurements of our team's results.

4.3 The Ratepayer is More Concerned About the Cost than Anything Else.

Q. How can "cost" to the customer be used to conserve water?

A. As discussed above, cost is the dominant "driver" of customer's reactions to rate changes, and the customer's behavior. In the "last rate case", I proposed a ten-tier rate structure, shown in Table 4.3-1 below:

Table 4.3-1. Present and Various Proposed Tubac Residential Rate COMMODITY Tiers and Rate Schedules

(per 1,000 gallons) **[from the "Last Rate Case"]**

Commodity Usage Tiers	**Magruder's Proposed Rates**	Present Rates	AAWC Initial Proposal	AAWC Final Proposal	AAC Staff Final Proposal	ACC Staff Alternative	RUCO Final Proposal
0 to 3,000 gallons	**$1.50**	$ 1.89	$ 3.78	$ 3.400	$ 2.67	$ 1.90	$ 3.4341
3,001 to 10,000 gallons							
First 4,000 gallons	**$1.50**	$ 1.89	$ 3.78	$ 3.400	$ 2.67	$ 3.00	$ 3.4341
4,001 to 8,000 gallons	**$ 2.00**						
8,001 to12, 000 gallons	**$ 2.50**						
10,001 to 20, 000 gallons		$ 2.85	$ 4.85	$ 4.800	$ 4.15		$ 4.4062
12,001 to 16,000 gallons	**$ 3.00**					$ 4.00	
16,001 to 20,000 gallons	**$ 3.50**						
20,001 to 24,000 gallons	**$ 4.00**						
24,001 to 28,000 gallons	**$ 4.50**						
28,001 to 32,000 gallons	**$ 5.00**	$ 3.41	$ 4.95	$ 5.500	$ 5.25	$ 6.00	$ 4.4971
36,001 to 40,000 gallons	**$ 5.50**						
40,001 gallons and above	**$ 6.00**						

The ACC Staff Alternative was the final rates approved in the case; however, if compared to Table 2.11-4 above, one can see that a customer could easily see when their monthly billing statement showed how close their usage was to reach a lower tier in order to reduce their cost.

It might be noted that the $6.00/1000 gallon rate started in the Magruder design when consumption exceeded 40,000 gallons but was much earlier at half that level of consumption at 20,000 gallons under the Staff's Alternative. This change was caused much higher bills that I proposed for the resultant Fourth Tier consumers.

Because only four tiers were used, customers just over 20,000 gallons paid $1.05/1000 gallons more than initially proposed by the Company, $1.5039/1000 gallons than the Final RUCO proposal, and all others but the graduated increases shown in the Magruder Proposal with ten tiers increased the volumetric cost $2.00 less for the 20k-24k gallon customer.

Forgetting that the Tubac rates exceed all others in the Company, the resultant First Tier was considerably had considerably lower customer costs, thus meeting a goal for lower income rates that were automatically included in this Rate Design, an issue I strongly supported in the "last rate case".

4.4 General Guidelines for a Rate Structure that Leads to Water Conservation.

Q. Can you provide your recommended guidelines for development of a water conservation–oriented rate structure?

A. These guidelines were initially developed in the "last rate case," after several iterations.[14] In general, the following are how I would suggest establishing a rate design, using the following guidelines, in order to have water conservation as a significant driver of the volumetric water rate:

1. The lowest Residential and Commercial Rate Class tiers are credited as a mechanism to provide low-income rates without additional administrative overhead. This should result in defining the First-rate tier also as the "low-income" for a survival rate level for some 3,000 or so gallons. Some businesses use very little water. The smallest will also benefit. Revenue lost from the "First Tier" will be made up from other customers who use more water than the upper level of the First Tier.
2. A minimum of Ten Tiers should be used for ALL Residential and Commercial rate classes and rate categories.[15] This is a beneficial adjustment of "how" the revenue requirements are distributed to the customer Rate Categories. Using a low number of tiers for commercial customers reduces their water conservation goals by not providing any **incentive** to reduce water consumption. This may be considered as a far-reaching step; however, it is easy to implement with today's software programs. Its benefits are worth the costs, a few days of programmer costs and a "rate description article" to explain this to all customers.
3. All Residential and Commercial Rate Class customers, with the same water connection size (that is, in the same Rate Category), should have the same Service Cost and Volumetric rates. Thus, the customer costs in the same rate category are equal, for the two most significant Rate Classes. This accounts for infrastructure needs for required for a level of service, that is, the Rate Category, regardless if Residential or Commercial. This will reduce the Company's

[14] Marshall Magruder Closing Brief, of 1 May 2009, at 18, in Docket Nos. W/SW-01303A-08-0227.

[15] During the course of the "last rate case", it appeared obvious to me that most parties would not accept ten tiers. Thus the Appendix 2 herein, from that case, shows only five tiers. I still would like to see ten tiers so that ratepayers can easily see how close they are to the next "rate step." Also, in Table 2.11-4, the proposed number of tiers varied between two and five tiers. Since ten tiers might result in "tier shock", a minimum recommendation for five tiers for all Rate Classes and Categories could easily be a first step in the resultant rate structure for this case.

administrative tasks and make understanding rates easier by all customers. It provides a clear and simple **incentive** to reduce consumption in the two dominant Rate Classes.

4. Correspondingly, the Residential Class and Commercial Class First tiers will have identical Service Cost and Volumetric Rates. This will be advantageous for many (probably most) small businesses where the Company's schedules have shown much higher rates for low commercial consumption. Many commercial customers typically use less water than comparable residential customers. Separately, the rates in the Company's proposed schedules discriminate against commercial customers with minimal tiers. Small business owners, like residential customers, also need to be able to determine and make decreases on how to reduce their usage in order to gain the cost savings in their next billing statement.
5. The Volumetric cost relationship between the First and highest Tier must be significant, say on a ratio of highest or Top Tier/First Tier of at least 3:1. That is, the First Tier rate should be less than one-third of the Top Tier. This provides the "spread" necessary to show how consumption impacts customer cost, which is necessary for many to make a behavior change necessary to reduce water consumption. The results from Tubac Top/First Tier present ratio of $6.00/$1.90 or 3.16 has resulted in a decrease of average water consumption for the residential ratepayers from the "last rate case" of 11,757 gallons/month to 8,348 gallons/month or 2,409 gallons/month or a reduction of 28.9%. This is the highest Top/First Tier ratio in this case, as all other districts had reduced water consumptions, but none to the degree as Tubac.
6. A Commission needs to determined a fair and reasonable Company's *total revenue*, from what I call the first phase of a rate case. The Company's *total revenue* is the sum of all customers' charges by the Company.
7. The *total revenue* must be the starting point for rate schedule design. The resultant customer rates must be revenue-neutral for the Company, as legally required.
8. The allocation of *Total Revenue* needs from all Rate Classes should be based on the relationship between the water consumption in all Rate Classes. This relationship, or ratio of the *Total Revenue* requirements, is a significant "decision factor" in each rate case because not all Rate Classes are equal in determining the cost of service.

9. The definition of Rate Classes must be the same throughout the Company. As shown in Table 2.8-2 above, many of the Rate Classes are unique, thus may "discriminate between persons and places," especially, since some are not even included in rate cases. By having a standard Company-wide definitions of Rate Class (and associated Rate Categories) and Tiers, simplifies and to a better understanding for both the Company and its customers.
10. The billing statements should make obvious the rate (cost) per tier and where that monthly bill lies in the multi-tier rate structure. This is how "price-signals" can be observed and informs the customer how much less water consumed is necessary to reach the next lower tier.
11. The smallest residential and commercial rate tiers (at least the First tiers) should be identical. This will be advantageous for the many small businesses that the Company's schedules have shown to typically use less water than the comparable residential rate category. Small business owners will look for where savings can occur based on consumption changes on there billing statements.
12. The fixed Service Charges variations should be minimal and leveled out across all ratepayers in each rate category.[16] This will also lead to consolidation of all fixed charges, across all water divisions, to equalize this "fixed" cost and can have significant impacts for lower income ratepayers.
13. The Service Charge and Volumetric rates can easily be simple numbers, usually at 10-cents/1000 gallons increments to achieve the *Total Revenue*. Any Rate in hundreds of cent/1000 gallons is neither required nor necessary. The Company did propose some districts with these micro rates while other districts are rounded rates. See Tables 2.11-3 and 2.11-4, above for these rates. Magruder's proposed Consolidated Rates in Appendix 3 rounds off all rates, mostly in 50-cent increments.[17]
14. The Company's Rules and Regulations have significant variance between districts, mostly due to left over words used by former district owners. Standardization of the Company's Rules and Regulations, including the discussion on rate structure, would greatly benefit the Company and it costumers. The present Rules and

[16] Table 2.11-3 above shows nearly a random distribution for service charge rates between the various districts.
[17] In Appendix 3, the First Tier Service Charge of $0.98/1000 gallons was chosen to make a statement that rates were below $1.00/1000 gallons for the First Tier.

Regulations are terrible and need to be thoroughly reviewed and re-written by an editor who can make them customer-friendly. The example, in 3.5 above, is an excerpt concerning a Proposed Low Income Plan, this is typical and is not clear, definitive nor practicably with major errors. They also do not exist in Spanish.

4.5 The Benefits of these Guidelines for Rate Design in This Rate Case.

Q. What would be the results of such a rate design?

A. Simply, the following are some of the benefits of using these design guidelines:

- Water Conservation-Based Rate Schedules. The key elements of a conservation-based rate design includes having
  - (1) Significantly lower rates for the lowest volumetric consumers and
  - (2) Significantly higher rates for the highest volumetric consumers.
- This widens the "spread" in rates so that lower consuming customers benefit, as these usually are the lower income and those on fixed incomes, such as those who are retired, and provides incentive for all ratepayers to conserve water. The principle used by this party is *that customers who use the least amount of water should pay the lowest rates and, conversely, for the highest consuming customers, the highest rates.*
- Equitable Low-Income Rates. The monthly average consumption figures average a bit 6,800 gallons/month at Mohave to 19,203 gallons/month at Paradise Valley in this case. In the "last rate case" the Company (AAWC) testified that only 300 to 500 gallons per person are needed for human consumption in a month, thus a First Tier low rates will significantly benefit the low-income and also all customers. At present, EPCOR does NOT have a viable Company-wide and low-income rate schedule but those benefits will occur when there is a wide spread between rates. In general, at least by a factor of three, should be the difference between lowest to highest rates in each customer category will be necessary.
- Additional Rate Tiers or Blocks Are Required To Send PRICE SIGNALs. Most rate categories have only two or three rate blocks or tiers. With this number of rate blocks, it is nearly impossible for a customer to see any impact of conservation. To incentivize water conservation, (many) more rate tiers or blocks are required so customers can move their consumption to a lower level by conserving. As shown in Table 4.3-1, the present rates blocks for one district (similar to the others) do not

present a gradual increase in cost to a customer. Table 2.11-4 above compares the present and proposed rate Tiers for the most significant Residential Service Categories. These Tiers fail to provide any **incentive** to reduce consumption.

- Using Rates for Water Conservation. Only the ever increasing, such as a 4,000-gallon tier-block approach, previously proposed in the Magruder ten-tier rate structure (Table 4.3-1 above), is necessary to provide customers with clear, obtainable price signals that can encourage conservation.
- Consider, review and modify, if necessary, the above "guidelines" for a Rate Structure that Leads to Water Conservation.
- **Water conservation and low-income rates must drive rate design**.

4.6 Conclusions for Issue 3.

Q. What are you conclusions for Issue 3?

A. It is concluded that the following are necessary, in my opinion, to most effectively operate this Company in an efficient manner with a significant goal to reduce consumption, provide a rate design that includes lower income ratepayers, while combing the water rates for the four districts in this case. The following are conclusion from the above discussion concerning Issue 3 and, due to the inter-relationships with Issues 1 and 2 including:

1. An inclined reverse block rate structure, with adequate number (at least five) Tiers (or rate blocks) should be developed to ensure **all** customers have an opportunity to reduce consumption by reaching the next lower rate Tier. For example, please see Appendix 3 for a combined rate structure developed for all of the water districts.
2. At least ten such rate Tiers should be designed with five being a minimum.
3. This inverse rate structure should have the First Tier (at the lowest rate) less than one-third the rate for the highest or Top Tier.
4. The First Tier should have a much lower rate with higher rates for higher consumption customers in each rate category. Increasing rates with greater changes sends a "Price Signal" to customers as a water conservation measure.
5. The First Tier (lowest) should be designated for ALL Residential and Commercial ratepayers since many smaller businesses are have similar usage as households.
6. The First Tier should consider its impact for the Lower Income ratepayers and be publicized as a "Lifeline" or similarly named rate by the Company.

7. The total revenue from the First, Second and higher Tiers, when combined with the Service Charge, other fees and charges plus the ROI, should equal the Total Revenue requirements for a fair and reasonable profit for the Company.
8. In this case, the Company's "Total Revenue" requirement should equal the total revenue requirements for Four water districts.
9. For the "next" rate case, the Total Revenue for all the remaining EPCOR water districts should be combined to the Total Revenue from the combined four districts in this case and identified for the Company's Total Revenue.
10. Revenue will be determined for this combined account and not be allocated to individual water districts as a rate making measure as these are just internal business units of the Company.
11. All "rules and regulations" (R&Rs) should be consolidated into one, streamlined, easy to read, document, in English and Spanish, and provide to the Commission for review before publishing.
12. The consolidated R&Rs, along with the effective tariffs, should be available as a document for customers review during initial and subsequent interviews, on the Company's web site, available in all offices and a copy in each company vehicle.
13. The Company should seriously consider going through the ISO 9000 (Quality Management) qualification process for the entire Company, with an aim to fully integrate all the company policies, practices and procedures.
14. The Company should consider the benefits of qualifying under ISO 14000 (Environment Management) as an environmental and publicity bonus.
15. To accomplish these ISO certifications, an **incentive** for the Company could be 1 or 2 percent increased ROI, for award upon completion of certification.
16. This party has never and does not support any form of a System Improvement Benefit Surcharge Mechanism (SIB) process. This is NOT understood by ratepayers and sets up additional accounting procedures. Several years ago, this Commission resolved this issue a most challenging and grueling experience in eliminating a proposed SIB by a major electric utility in an ugly show that I, nor anyone else who wants EPCOR to be successful, would wish on their worst enemy.
17. Don't wait for a later rate case and **let the existing rate discrimination continue** when they could be resolved now. Later maybe too late.

4.7 Recommendations for Issue 3.

I strongly urge and recommend that the Commission:

1. Review the Conclusions in 4.5 with an aim considering implementation.

2. Require the Company to respond to these guidelines with a rate schedule, to generally meet the "guidelines" in 4.4, for the four water districts.

3. Require the remaining EPCOR water divisions in the next rate cases to fully combine their rates for a single, combined EPCOR water rate schedule.

4. Integrated the entire Company to eliminate inefficiencies by the legacy water "districts".

5. Increase the Company's ROI at least 1 to so percentage points, as an incentive, above what it would normally award in this case, in order to reflect the higher risk and potential additional costs by rewarding the Company as its reorganizes into a better entity and becomes ISO 9000-certified, and possibly ISO 14400-certified.

Without #5 above, in my opinion, the management synergies necessary to respond effectively to these new requests may have less significance to upper management as to succeed, with a smaller reward.

If these bold, objective, and obviously beneficial changes being made now, these integration processes will improve the Company, all ratepayers will benefit in the long-term with more stable rates.

The present situation is deplorable and almost dysfunctional. It is not impressive to potential investors, actual shareholders and today's nervous financial community.

A strong, unified, more efficient operation will attract investors, while continuation of the present situation may continue to repel.

I support such action as a result of this rate case, with periodic status reports, to the Commission as to "lessons learned" so that any mistakes in combining these four districts are transparent and the best corrective action, with direct support by the Commission Staff as necessary, to make EPCOR as the best in Arizona and the United States.

Q. Does this complete your testimony?

A. Yes.

Appendices

Appendix 1. Background of Marshall Magruder

Appendix 2. Comments on the Proposed Rate Increase for Arizona – American Water Company, Tubac of 18 November 2003

Appendix 3. Consolidated Rate Schedules by Marshall Magruder

Appendix 4. "How to Apply for Low Income Utility Rates that may Reduce Your Utility Bills by $200 or more in 2015 and 2016, Santa Cruz and Pima Counties"
[AARP/VITA and H&R Block handouts]

Appendix 1

Background of Marshall Magruder

This Appendix contains a listing of prior cases that I have appeared before the Commission and a brief resume of my education, my overall experience, positions I have recently held, details of this experience, published papers, various company courses and military schools, significant military experiences, and awards.

I have made appearances before this Commission, either as a party or as an individual, in the following:

a. Arizona Power Plant and Transmission Line Siting Case No. 111 (TEP's CEC Application);
b. ACC Docket No. E-01032C-00-0951, the Citizens Purchase Power and Fuel Adjustment Clause (PPFAC) hearings;
c. ACC Docket Nos. E-01033A/E-01032C/ and G-01032C-02-0914, the UniSource-Citizens Acquisition hearings and its Gas Rate Case;
d. ACC Docket No. E-04230-03-0933, the UniSource-Sahuaro Acquisition hearings;
e. ACC Docket No. E-01032A-99-0401, Service Quality issues, analysis of transmission alternatives and proposed plan of action in Santa Cruz County, reopened in 2005;
f. ACC Docket No. G-04204A-06-0463, a UNS Gas Rate Case;
g. ACC Docket No. E-04204A-06-0783, a UNS Electric Rate Case;
h. Arizona Power Plant and Transmission Line Siting Case No. 144, ACC Docket No. L-00000F-09-0144 (UNS Electric's CEC 138 kV upgrade Application);
i. Arizona Power Plant and Transmission Line Siting Case No. 164, ACC Docket No. L-00000C-11-0164 (UNS Electric's CEC Rosemont Mine 138 kV line);
j. ACC Docket No. W/SW-01303A-08-0227, Arizona-American Water Company Rate Case, referred to as the "last rate case", and in
k. Many ACC Open Meetings including gas line safety hearings, Biannual Transmission Assessment (BTA) workshops, the Environmental Standards Portfolio (ESP) and Renewable Energy Standards Tariff (REST) workshops, and other workshops.

Resume of Marshall Magruder

EDUCATION

MS in Systems Management, University of Southern California (1981); MS in Physical Oceanography, Naval Postgraduate School (1970; BS, US Naval Academy (1962)

EXPERIENCE

Over 25 years as Senior Systems Engineer as an associated contractor, consultant, Raytheon-Hughes in systems engineering, training and naval systems, simulation and modeling; over 40 years experience with 20 years of service with the US Navy

- **Large-system development** at all levels from pursuit, analysis, winning strategy, Request for Proposal evaluation, proposal supervision, system requirements analysis, architectures, specifications, design synthesis, trade-off studies, requirements allocation tracking, to system, level test planning, deployment, implementation, through sign-off, for large complex systems.

- **Developed** Antisubmarine Warfare (ASW), Electronic Warfare (EW), Command, Control (C2), Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) operational concepts, procedures, and tactical employment.

- **Used, operated, and planned** Navy, Army, Air Force, Coast Guard, Joint and Allied systems, world-wide.

- **Coordinated multi-platform employment** from sensor to tactical platform to Battle Force to Theater-level.

- **Qualified systems engineer/manager** for trainers, C4ISR, countermeasures, for any platform.
- **Specialties:** environmental analysis, documentation, sensor/weapon predictions, C4ISR, Electromagnetic and Emission Control decision criteria.
- **Battle Force/Group Tactical Action Officer** on 8 aircraft carriers, TAO Instructor, 22 months in combat.

RECENT POSITIONS at ImagineCBT, ISIS, Raytheon, Hughes, and others

C4I Architect and **C4I Support Plan Lead** for the Carrier for the 21st Century (CVX) Task Order.
- Completed *CVX C4I Support Plan, v1.0,* Joint Operational Architecture for Joint and Naval staff space allocations for CVX and the Joint Command and Control ship.
- Drafted *CVN 77 Electronics System Integrator Statement of Work (SOW)* for tasks and Integrated Product Team's *Integrated Management Plan*; Royal Navy Future Aircraft Carrier SOW proposal

Lead Systems Engineer, Operations Analyst and **Site Survey Leader** for Saudi Arabian Minister of Defense National Operational Command Centers and C4I System.
- Completed the *System Specification, System Description, Site Survey, Interface Requirements Documents*

Proposal Technical Volume Manager for the following **winning proposals**:
- Vessel Traffic Service 2000 system, US Coast Guard command center for surface surveillance using radar, visual, communications links. (won proposal evaluated A++, won Phase I)
- Anti-submarine Warfare Team Trainer (Device 20A66), an integrated, multi-ship, submarine, aircraft and staff training system for Naval Task Groups. (won $56M contract, best technical, lowest cost)
- Electronic Warfare Coordination Module (EWCM), an Intelligence/EW spectrum planning and management system for Task Force Command Centers. (won Phase I, best technical)

Assistant Program Manager for the Training Effectiveness Subsystem, Device 20A66
- Performance Measurement Subsystem, observed real-time performance of operators, teams, multi-ship and aircraft units during exercises and compared to the standard

Senior Systems Engineer responsible for writing **specifications** in following winning **proposals**:
- Fire Support Combined Arms Team Trainer *System Specification*, a US Army field artillery, multiple cannon and battery training system. (won, awarded $118M contract, still under contract)
- Warfighter's Simulation 2000 (WARSIM 2000) *System Specification*, a US Army Force XXI Century battalion to theater levels, training system with actual C4I systems. (won)
- Tactical Combat Training System, (TCTS) *Exercise Execution Software Requirements Specification* for simulation and computer models to run real-time, driving sensors, weapons and links on 35 ships, 100 aircraft and submarines (won Phase I contract, wrote SRS in Phase 2 proposal)

DETAILED DESCRIPTIONS OF EXPERIENCE

The following are more information, arranged chronologically, with dates, position title, program name, followed by accomplishments, and an overview of the project.

2000 to 2010 – ISIS, Inc., as Senior Scientist, Information System Architect, Systems Engineer, Training Systems Analyst and **Requirements Analyst.**

Department of Interior Management, Organization and Business Improvement Services and Professional Engineering Services proposal analysis (2005), prepared detailed requirements, tasks analysis of the RFP, and proposal plan.

General Accounting Office (GAO), reviewed and prepared training system development and professional engineering services processes and job descriptions for a training proposal.

Strategic Services and Support , attended pre-solicitation conference for the Army Communications-Electronics Command, Ft. Monmouth NJ, prepared a $19.25 billion program proposal.

Total Engineering Information Services , participated as proposal writer, pink and red team member with another company as prime for a $12M, multi-year, contract for Army Information Systems Engineering Command, Ft. Huachuca contract. Prepared Risk Management Plan for prime contractor.

Networthiness Certification, prepared proposal for the Army Network Command for this multimillion-dollar program involving over 3,200 Army computer programs at all Army installations, worldwide. Prepared Quality Control and Risk Management Plan.

Cryptologic Support and Logistic Analysis, prepared proposal for the Army Communications-Electronics Command, Ft. Huachuca, AZ.

Information Warfare Training, USAF Small Innovative Business R&D contract to determine Information Warfare training (IW) requirements and measure performance in an intelligence, wargaming system, to develop an IW training system for the USAF Information Warfare Aggressor Squadron.

US Army Virtual Proving Ground (VPG) - Did Architecture Framework development, implementation and documentation with the DoD *C4ISR Architecture Framework* for framework architecture products.

Prepared C4ISR architecture framework proposals for U.S. South Command Command Center, DoD Threat Reduction Agency Operational Command Center, and Department of Health and Human Services Command Center programs.

2001 to 2009– C4I Architect, Operations Analyst and **Systems Engineer** for the UK Minister of Defence Future Aircraft Carrier program, at Raytheon Naval & Maritime Ship Systems, San Diego, CA.

Prepared for Raytheon Naval Ship & Integrated Systems proposals with Statement of Work, Data Descriptions for Architecture Assessments (Requirements, Testing) for ten functional mission areas, Global Information Grid evaluations for the CVF to be interoperable with US Joint forces, and Levels of Information System Interoperability using DoD LISI procedures, applications, infrastructure, and data attributes to determine internal and external interoperability assessments

Prepared proposal for Raytheon C3I Systems for the Joint Command and Control Ship, *JCC Interoperability Study*, including reporting and preparing conference presentations and making recommendations to JCC Program Office ensuring interoperability of 400+ tactical, logistic, administrative, and C4ISR applications.

Prepared proposal and performed contract for Raytheon for *JCC Reconfiguration Study* to determine requirements to most effectively manage command (C4ISR) onboard the JCC.

Provided architecture framework proposal inputs and evaluation for US Army Land Warrior III for Raytheon C3I Systems in Plano Texas.

Provided C4ISR systems engineering and proposals for LHA, JCC, CVF and other NAMS ship programs.

2000 - 2002 – MBA Instructor, University of Phoenix, for "Operations Management for Total Quality" and "Managing R&D and Innovation Processes" courses.

Taught MBA courses in Nogales to Mexican maquilladores managers and in Tucson to American managers.

Qualified to teach "Program Management" course.

1999 – present - AARP Tax Consulting for Elderly tax preparer, annually IRS-qualified for Advanced individual returns with military, cancellation of debt, health savings account area specialties.

As the county AARP Instructor, I teach standards of conduct, ethics, tax law and tax software programs.

1998 - 2000 – CVX C4I Architect and **C4I Support Plan Leader** also **Lead Systems Engineer** and **Requirements Analyst** for CVN 77 and CVX Programs, at Raytheon, San Diego, CA

Performed C4I Support Plan analysis to understand the DoD C4I Support Plan requirements.

Led team to understand the *Architecture Framework's* Operational, Technical and Systems products.

Managed team to draft and submit plan to NAVSEA (PMS-378) for two customer reviews.

Provided interface with CVX and Joint Command and Control Ship to combine architecture development for NAVSEA (PMS-377), drafted task schedule.

Proposed a "Reconfigurable Joint and Naval Staff Space Allocations" to start the CVX/JCC *Operational Architecture* and *Mission Essential Tasks* process. (3 studies approved)

Coordinated an "Architecture Implementation Course" at RCS, San Diego.

Created the CVN 77 *Electronic Systems Integrator Statement of Work* for the CVN 77 RFP in 1999.

Provided various trade studies and options for performing this task for Newport News Shipbuilding.

Wrote a draft CVN 77/CVX "Total Ship Systems Engineering Plan for our team.

Implemented the Raytheon and Newport News *Integrated Product and Process Development* processes to structure IPTs, tasks, and develop work and task descriptions.

Provided interoperability inputs to UK Future Aircraft Carrier (CVF) Raytheon Qualification letter.

Participated in establishing teaming arrangements with SPAWAR Systems Center, San Diego.

The CVN 77 is the last carrier of the *Nimitz* class. The first CVX is to be commissioned in 2018; the tenth CVX is planned for disposal in FY 2111. Total personnel are to be reduced by 1,740. Up to 12 different staffs may embark with 1,000 augmentation personnel beyond the normal capabilities. CVX can embark a Joint

Task Force Commander with command and control systems for Operational-Theater and Tactical levels. The CVN 77 ESI role involves integration of all C4ISR equipment, internal and external communications, navigation, sensors, fire control, weapons, and associated display processing systems.

1998 to 2013 – H&R Block, Senior Tax Advisor Level 3, seasonal tax preparer (annually, January to April 15), part time, qualified by the IRS as a Registered Professional Tax Preparer (RPTP) with a PTIN.

1997 - 1998 – DD 21 Requirements IPT Lead, Systems Verification and Test IPT Lead, and **Initial Lead Systems Engineer** for the Hughes-Raytheon, DD 21 Program.

Provided IPPD plans for all systems engineering functions, from subsystem to total Ship System levels.
Managed two Integrated Product Teams (IPTs) as additional DD 21 personnel were assigned.
Conducted Video Teleconferences with IPTs, with weekly Agenda, Minutes, and led team meetings.
Attended Risk Management course. Recommended RSC's Prophet™ risk management software tool for DD 21 and other ship integration programs. (adopted, now is the NAVSEA standard risk process)
Provided the initial *DD 21 Total Ship Systems Engineering Plan.*
Coordinated systems engineering modeling and simulation planning.

The Future Surface Combatant of the 21st Century Program consisted of destroyers and cruisers, with a Land Attack Destroyer (DD 21) to be commissioned in FY2015 and an Air Dominance Cruiser in FY2020. I participated in program implementation, maintenance of collaborative and synergy with both CVX and SC-21 programs, and emergent JCC and Coast Guard Deep Water Programs.

1995-1997 – Operations Analyst, Site Survey Team Leader, Naval Operations and Joint Training Analyst, *C4I System for National Defense Operations Center & Area Command Centers Definition Study.*

Created significant inputs to and reviewed the *System Description Document, System Specification* as Lead Systems Engineer, emphasized operational concepts for staffing and workstation operator tasks; operations center and support facility layouts; specifications for a transportable operations centers; system-level communications interfaces for various communications; system hardware and software interfaces; operator training; selected integrated messages, and system performance characteristics.
Managed program budget and personnel for 3 months deployments for 12 engineers in Saudi Arabia.
Conducted interviews and briefs with members of all joint Minister of Defense and Aviation staff and all armed forces, including schools and topographic commands.
Provided reports, program reviews for survey and design efforts including coordinating Action Items and Program Management Review Minutes.
Performed pre-contract planning analysis for site survey from battalion to national level command centers.
Drafted System Specification for a Land Forces Operations Center, deemed excellent by customer.
Prepared *Site Survey Report*, participated in drafting the *Communications Interface Requirements Document*, and presented multiple customer briefings.
Only engineer to start and complete this $10M contract, the others were replaced at customer request.

The MODA C4I System provides 13 Kingdom-wide operations centers to form a joint C4I system, integrating all services for 3 command echelons and a Land Force a digital C2 system for 4 echelons.

1995 – Systems Engineer, for an AirHawk Concept of Operations.

Drafted a preliminary "*Operations Concept Document (OCD) for the Air HAWK*" system for HMSC in Tucson, provided a systems approach to integrate the subsystems with the missile using MIL-STD-498 as a guide.

AirHawk is to provide an air-launch system capability for the U.K. Tomahawk cruise missile.

1995 - Lead Systems Requirements Engineer, Warfighters' Simulation 2000, US Army training system.

Performed system functional requirements analysis for command and control from battalion to Theater-level
Responsible System Engineer for analysis and writing of the System Specification in accordance with MIL-STD-498 (System Engineering).

WARSIM 2000 C4I training system stimulates all present and emergent Force XXI C4I systems with data for entire staffs in Tactical Operations Centers in the field, in classrooms and at War Colleges. WARSIM 2000 integrates with other joint systems through protocol standardization and object-oriented design features.

1994 – System Requirements Engineer, Theater Battle Management Core System, USAF C4I system.

Ensured compliance with the contract and requirements documents integrating different systems into the TBMCS proposal, including the Global Command and Control System.
Drafted a compliance matrix with 200 pages meet demanding RFP requirements

TBMCS is the US Air Force theater to squadron level C4I system.

1994 – Proposal Technical Manager, Vessel Tracking Services 2000, US Coast Guard C3 system.
Led the technical and engineering proposal efforts to comply with the RFP and proposal requirements, based on Hughes themes and proposal strategy decisions.
Managed systems, hardware, communications, software, and logistics engineers writing the responsive proposal. (Ten corporate teams bid; Hughes won Phase I with two others including Raytheon, Hughes performed Phase I, Congress delayed Phase II, program was later restructured)
VTS interfaces radar, visual surveillance, environmental, and voice communications data with differential Global Positioning System information from automated and human input to enhance safety and commerce on waterways and for major port regions.

1993-1994 – Lead Systems Engineer, Fire Support Combined Arms Tactical Trainer, US Army trainer.
Team Leader for the requirements analysis, design, system engineering and proposal efforts.
Drafted and led several pre-RFP System Requirements Reviews for the System Specification.
Developed a technique with Distributed Interactive Simulation protocols where a thousand or more cannons can perform exercises from multiple sites in same exercise.
FSCATT integrates artillery and fire control with a Forward Observer visual training system, provides Fire Direction Center simulation and stimulation interfaces with Close Combat Team Trainer M1 tank and M2 systems. (Hughes won $118M program)

1990-1991 – Systems Requirements Engineer, Tactical Combat Training System (TCTS), US Navy C4I training system.
Led the simulation and modeling, system requirements analysis for all real-time operations for the proposal and Phase I development efforts. (Hughes won Phase I)
Wrote most of the *Exercise Execution CSCI SRS* for real-time system execution software for over 100 simulations and sensor, weapons and platform models.
TCTS provides a task group training data link for 100 aircraft, 24 ships and submarines, 6 ashore facilities and ranges, with up to 780 real-time targets. TCTS uses participant data link pods between platforms; stimulates platform sensors with the real-time targets; maintains data link communications; collects data for feedback and rapid after action reviews. (Hughes team won Phase I, Raytheon Phase II)

1991 - Human Factors SE for Land Warrior 2000 proposal, US Army infantryman C4I system.
Human Factor Engineer for proposal effort for the helmet display overload analysis with computer text and graphic display resolution. Left to lead FSCATT Systems Engineering and Proposal teams.
Land Warrior 2000 system provides infantrymen with an integrated C4I System for an infantry brigade, with computer-driven displays, messages, GPS, and other C2 features.

1988-1991 – Assistant Program Manager for the Training Effectiveness Subsystem, Device 20A66.
Created Performance Measurement Subsystem with subcontractor analysis, documented design details.
Managed $1.2M subcontract, conducted reviews, wrote SOWs, evaluated products and subcontractor.
The Performance Measurement Subsystem determines operational performance (real time) for trainees from Admiral to sensor operators and for ship teams, multi-ship and tactical units.
1988-1991 – Senior Systems Engineer, Device 20A66.
Lead Systems Engineer, provided significant inputs for models, simulations, communication data link interfaces, user displays, and I/O; consultant to software team as ASW expert.
Designed to real-time Links 4A/11/16 with ships in port and ships/aircraft at sea.
The Device 20A66 trains a Battle Group Commander in a Task Force Command Center, staff and subordinate staffs (20 ships and submarines, 15 aircraft in 35 mockups using 186 workstations, 61 large screen displays) to use data links, communications, and effective tactical decision making practices.
1986-1988 – Proposal Technical Volume Manager, Device 20A66.
Evaluated Draft-RFP and System Specification, provided 229 change pages, acknowledged as best significant pre-proposal action by bidder.
Led pre-proposal, technical design and development effort as the only engineer for 1 year.
Led Technical Volume Manager, team of systems, simulation, hardware, courseware, facility, logistics and software engineers in synthesis and drafting of a 500-page technical volume, cost less than estimate.
After proposal submittal, replied to questions, gave briefs. (Hughes won, beat 2 incumbents)

1987-1988 – Proposal Manager, Law Enforcement Driver Trainer System for California.
Led pre-proposal and proposal team to develop a design for high-technology driver trainer systems for the Peace Officers and Safety Training (POST) Commission. (Hughes won)
Participated during contract, as systems engineer in-charge of design, to verify that the POST training objective(s), standard(s) and criteria would be met for the drivers of the system.

1987 – Lead Engineer, Advanced Fuels Auxiliaries Test System (AFATS) for US Air Force
Provided initial engineering requirements analysis leading to a joint venture with Allison Gas Turbines to bid this major USAF test system.
Drafted initial System/Subsystem Design Document as the basis for design.
Hughes bid, after I left project; however, USAF then declined to award contract.

1986-1987 – Proposal Coordinator, USAF LANTIRN training system.
Led proposal compliance review for real-time video and infrared requirements using Hughes RealScene™ 3-D (voxel-based), interactive system for a GBU-15 training system.
LANTIRN trainer provides real-time displays of video and IR images to cockpit and weapons systems for F-15, F-16 flight simulators and the AGM-130 missile.

1985-1986 – Senior System Engineer for the Electronic Warfare Coordination Module program with responsibility for the environmental effects design.
Led technical proposal effort, coordinated proposal outline, reviewed storyboards and topics, determined compliance, edited technical volume, and synchronized with other volumes.
Responsible engineer for atmospheric and acoustic effects on propagation and degradation from countermeasures, provided customer briefs, and coordinated subcontractor requirements.
EWCM provides full spectrum management capabilities for the Electronic Warfare Commander to coordinate operational and intelligence EW information and databases. (Hughes won Phase I)

1982-1985 – Systems Engineer for the training subsystem, ASW Tactical Ship Training System.
Led technical proposal effort for the Performance Measurement and Monitoring training subsystem, sonar simulation, operator displays, fire control, data links, and sensor, weapon and platform modeling.
Designed PMM subsystem, pushed the state-of-the-art, land and implemented in Device 20A66.
All ASW ships and ASW aircraft were simulated in a single-ship, multi-dimensional (anti-air, anti-surface, anti-submarine) environment, as a C2 and sensor operator training system.

PAPERS

Presented two papers to the Industry/Inter-Service Training Systems Conferences (I/ITSC):
"Design Concepts for a Performance Measurement System" [nominated for best paper, in top 5 of 105]
"A Performance Measurement System Design", based on Device 20A66 results.
Prepared and presented three reports to the National Security Industrial Association (NSIA), ASW Committee, as Vice-Chairman of Training and Interoperability Subcommittee;
Study Leader for following Reports:
"Training Commonality for Oceanography and Acoustic Environment Study Results"
"Training Commonality for Detection and Classification Study Results"
"Proposed Standard Sonar Equation for Technical, Tactical, and Training Communities"
Received NSIA Meritorious Award for leading these ASW industry and government studies)
Presented paper to the Hughes Advanced Technology and Studies Group describing the use of "Distributed Interactive Simulation Protocols in C4I Systems".

RAYTHEON AND HUGHES COURSES

Taught "Introduction to ASW Tactics" course, at Hughes (4 times) and for the *Advanced Training Institute* at 10 times at the Naval Underwater Systems Center, the Naval Surface Weapons Center, Naval Civil Engineering R&D Center and other locations.
Attended "C4I Architecture Implementation", "Risk Management", "Front-End of the Business", "Systems Engineering", "Global Command and Control Seminars"
Attended Advanced Technical Education Program Courses:
Software Risk Analysis, Software Estimating and Prediction, Database Modeling, Object-Oriented Software Methodologies, Proposal Development, How to Interview Candidates, Microsoft Word, Creating a Web Browser, Netscape User's Courses

Participated in the NSIA Industry War Games at Naval War College (Newport) and the Marine Corps Command and Development Center (Quantico).

MILITARY SCHOOLS

Attended US Naval schools including Destroyer School Department Head, Gunnery, Anti-Submarine Warfare (ASW), Communications Security Officer courses, NWC Wargaming and NTDS User Courses.

Qualified for Command of Destroyer, Tactical Action Officer (Battle Group and Ship levels), Officer of the Deck (cruiser and destroyer), Ship Command Duty Officer (staff, cruiser, destroyer) and Surface Warfare Officer.

SIGNIFICANT MILITARY AND OPERATIONAL C4I EXPERIENCE

Active duty US Navy commissioned officer served as: (home ported twice in 2nd, 3rd, 6th and 7th Fleets)

Area ASW Force, Sixth Fleet (CTF 66) as Staff Plans Officer coordinated all surface ships, aircraft carriers, submarines and ASW/EW aircraft in the Sixth Fleet area on a daily basis; conducted operational ASW with real targets; coordinated (simulated) daily submarine, surface ship and air-launched anti-ship Harpoon attacks on targets. (Awarded Meritorious Service Medal for highest Fleet-level ASW performance)

Fleet ASW Training Center, Pacific Fleet, lead Coordinated ASW Tactics Instructor/Staff Oceanographer, at-sea as ASW Commander Instructor Watch Officer during Fleet Exercises, augmented Destroyer Squadron staffs. Taught coordinated ASW tactics at Fleet Combat Training Center to TAO classes for 3 years.

Commander Carrier Group THREE, staff ASW Surface Operations and Geophysics/ Environment Officer, deployed twice to Western Pacific/Indian Ocean; planned and directed RIMPAC 77 with Japan, Australia, New Zealand and Canadians, 3 aircraft carriers, 7 submarines, over 150 aircraft; planned Persian Gulf CENTO MIDLINK-77 with UK, Iran and Pakistan; qualified Battle Force TAO on 5 aircraft carriers.

Naval Surface Warfare Officers Schools Command/Naval Destroyer School as the ASW Tactics and TAO Instructor for Prospective COs, XOs, Department Heads, Free World Navies Courses for mid-grade officers from over 30 countries; co-developed Naval Tactical Analysis Wargame to evaluate tactical concepts including Harpoon anti-ship tactics; led ASW team trainers with students; trained anti-PT boat exercises; taught ASW/anti-surface warfare tactics, EW, communications and EMCON decision making classes. Taught surface ship ASW at Submarine School, guest instructor at Naval War College, used NWC wargaming facilities to evaluate new systems and ships. (Awarded Gold Star for second award of the Navy Commendation Medal, the first officer to receive this award at this command)

Commander Cruiser-Destroyer Flotilla TEN, as ASW Plans Officer, deployed to Sixth Fleet, embarked on 3 aircraft carriers, 2 cruisers including USS *Albany*. Planned many Sixth Fleet, NATO exercises and CENTO exercises. Engaged in more than 50 Soviet bomber over-flights of Battle Group, 100% successfully intercepted by fighters and missile lock –on prior to 100 miles from the carrier. (Awarded Meritorious Unit Commendation for validating anti-SSBN tactics and developing SSN direct support procedures)

USS *Hollister* (DD788), Operations Officer, deployed for 2 years, with19 consecutive months of combat operations off North and South Vietnam in the Seventh Fleet, provided naval gunfire support (over 28,000 rounds), maritime surveillance, SAR, Gemini VIII space craft rescue ship, EW intelligence collecting, and Korean operations. (Awarded Secretary of Navy Unit Commendation, Navy Commendation Medal with Combat "V", Vietnam Service Medal with 3 campaign stars, Republic of Viet Nam Campaign Medal)

USS *Robert L. Wilson* (DD748), ASW Officer, deployed to Sixth Fleet for ASW operations, UN rescue ship off Cyprus, NATO exercises, Gemini IV NASA space craft rescue ship, participated in Dominican Republic operations. (Armed Forces Expedition Medal for Dominican Republic ops, National Defense Medal)

USS *Springfield* (CLG7), Main Battery Fire Control Officer and Missile Fire Control Officer, deployed in Sixth Fleet for over a year, homeported in Villefranche-sur-Mer, France.

AWARDS

Arizona Golden Rule Citizen Award, by Arizona Secretary of State Janice K. Brewer for exemplifying the spirit of the Golden Rule daily: "treat others the way you would like to be treated", nominated by Santa Cruz County Supervisor Ron Morris on 2 August 2004, for accomplishments on the Santa Cruz County/City of Nogales Joint Energy Commission. (2004)

National Security Industrial Association (NSIA) Anti-Submarine Warfare Committee, Meritorious Award from the NSIA President, Admiral Hogg USN (Ret.), lead several ASW training industry and government studies. (1992)

Merit Awards, Raytheon and Hughes, four times, for achievement and excellence in performance.

Military Awards include Meritorious Service Medal, Naval Commendation Medal with Combat "V" and Gold Star, Navy Unit Commendation, Navy Meritorious Unit Commendation, National Defense Medal, Armed Forces Expeditionary Medal (Dominican Republic), Vietnam Service Medal with three Bronze Stars, Vietnam Campaign Medal with "1960-", Overseas Service Ribbon (Italy).

Appendix 2

Comments on the Proposed Rate Increase for Arizona-American Water Company, Tubac on 18 November 2003.

Marshall Magruder
PO Box 1267
Tubac, AZ 85646

18 November 2003

BEFORE THE ARIZONA CORPORATION COMMISSION

For the Open Meeting held this date in Tubac Arizona

Comments on the Proposed Rate Increase for Arizona-American Water Company, Tubac

FIRST ISSUE – UTILITY RATE INCREASES, WHY?

American business are **leaders in developing efficient work processes** to lower costs and dominate that business environment.

Of all the industries, the utility industry has proven to be amongst the **least efficient**. With less than one third of the energy used by the $1 trillion dollar electric industry, delivered to customers, we need to "open our eyes" to just plain effective business management.

This water case, with a "cross the board" rate increase is another accounting trick, which failed to look at the real "cost of doing business" issues. Let's explain this.

A **zero-based budget approach** is essential to determine the "cost" of each step in the business process model. Cost components change with time, they are not all "flat." Without examining each cost element, by each company, then did the American-Arizona Water Company fail to properly assess the detailed impacts of doing business?

More importantly, this approach defeats efficient management and should not be tolerated by the Commission. Make AAWC show you their numbers, by each cost element category. Then make AAWC **prove to you the actual, measured, and documented cost of that cost element category**. "Shot-gun" approaches are used by lazy and ineffective management teams.

Public service companies have all their books open during ratemaking cases. They need to be audited to the level necessary to **verify and validate** that their charges are (1) **prudent**, (2) **fair**, and (3) **reasonable**. A fair and reasonable return should be awarded for efficient companies.

Most utilities have never heard of **ISO 9000**, the integrated management and business process program for quality organizations. It's applicable to every company in this country, including the water utility business. The implementation of the 20 different business processes in this world-wide (a la "Deming") program, will improve corporate efficiency at all levels by all departments. ISO 9000 goes for "**self-improvement" mechanisms**, embedded into the day-to-day operations, to foster overall corporate improvement. It is obvious by just the "cross the board" approach in this case, that ISO 9000 has not been implemented at Arizona-American Water Company.

Based on this, then **ISO 14400**, for **Environmental Management** practices, surely has not been considered. Such practices, when implemented by a water company, involve all environmental management decisions inside this company and their external impacts. This company needs to consider establishing ISO 14400, in addition to ISO 9000.

If so, the next rate case will be different. Why should a properly managed company requesting any rate increases, when efficiency results in rate "decreases. **When did this last happen in Arizona**?

I have worked in companies where these have been implemented, including a Macolm Baldridge National Quality award organization. The differences are instantly amazing. You find a totally different atmosphere towards working as a team. **What's going on now is mismanagement**.

Please work these details and have the "**best and brightest**" companies **propose rate reductions** the next time around, as my second issue, discusses the impacts of this problem.

SECOND ISSUE – IMPACTS OF THIS UTILITY RATE INCREASE

We have had a series of recent utility increases in Santa Cruz County. These include the following:

Natural Gas rate increase	20.9%
Electricity rate increase	22.0%
MEDICARE	13.9%
Trash charge per car load	100%
Proposed Water rate increase	**86% to possibly 35%**

Lets look at what a **fixed income person**, **retired on social security** received to compensate:

Social Security COLA	**2.1%**

Again, with a fixed income, **something is not going to be on the dinner table for these folks**!

"ENOUGH IS ENOUGH"

Please fix these problems, **don't just pass on increase after increase without making them work**, if they have poor business practices and mismanagement.

Sincerely,

Marshall Magruder
(520)398-8587
marshall@magruder.org

Appendix 3

CONSOLIDATED RATE SCHEDULES
BY MARSHALL MAGRUDER

1. Scope. This filing consists of copies of spreadsheets computed using the version 4 of the Company's Consolidated Rates Microsoft Excel program. Two Excel files have been provided to all parties with email so that compatible reviews can be compared.

2. References. Upon inclusion of the two Excel files (included in the electronic submission of these schedules and indicated by * below), with updated Excel files from the version 4 Company's Consolidated Water Model are incorporated by reference in this submission:

   AZAW Consol rates Water – Residential v4 Step 1.xls (dated 2 June 2010)
   AZAW Consol rates Water – Residential v4 Step 2.xls (dated 2 June 2010)
   AZAW Consol rates Water – Residential v4 Step 3.xls (dated 2 June 2010)
   AZAW Consol rates Water – Residential v4 Step 4.xls (dated 2 June 2010)
   AZAW Consol rates Water – Residential v4 Step 5.xls (dated 2 June 2010)
   AZAW Consol rates Water – nonpotable v4 Step 1.xls (dated 2 June 2010)
   AZAW Consol rates Water – nonpotable v4 Step 2.xls (dated 2 June 2010)
   AZAW Consol rates Water – nonpotable v4 Step 3.xls (dated 2 June 2010)
   AZAW Consol rates Water – nonpotable v4 Step 4.xls (dated 2 June 2010)
   AZAW Consol rates Water – nonpotable v4 Step 5
   AZAW Consol rates Water – PF v4 Step 1.xls (dated 2 June 2010)
   AZAW Consol rates Water – PF v4 Step 2.xls (dated 2 June 2010)
   AZAW Consol rates Water – PF v4 Step 3.xls (dated 2 June 2010)
   AZAW Consol rates Water – PF v4 Step 4.xls (dated 2 June 2010)
   AZAW Consol rates Water – PF v4 Step 5.xls (dated 2 June 2010)
   AZAW Consol rates Water – Commercial v4 Step 1.xls (dated 2 June 2010)*
   AZAW Consol rates Water – Commercial v4 Step 2.xls (dated 2 June 2010)
   AZAW Consol rates Water – Commercial v4 Step 3.xls (dated 2 June 2010)
   AZAW Consol rates Water – Commercial v4 Step 4.xls (dated 2 June 2010)
   AZAW Consol rates Water – Commercial v4 Step 5.xls (dated 2 June 2010)
   AZAW Consol rates Water – Total v4 Step 1.xls (dated 2 June 2010)*
   AZAW Consol rates Water – Total v4 Step 2.xls (dated 2 June 2010)
   AZAW Consol rates Water – Total v4 Step 3.xls (dated 2 June 2010)
   AZAW Consol rates Water – Total v4 Step 4.xls (dated 2 June 2010)
   AZAW Consol rates Water – Total v4 Step 5.xls (dated 2 June 2010)
   Stepped Rate Summary v4.xls (dated 2 June 2010)

3. Discussion of Consolidated Schedules.

   a. Water District Schedules. The Rate Consolidation Schedules for the eight Water Districts use the references cited above. The "Assumptions" in file "AZAW Consol rates Water – Total v4 Step 1.xls" are provided in Attachment A. The above files contain mean and average customer usage data and specific changes for each district, rate category, and class. There are no other Model changes (other an correcting a minor summing function in Commercial Step 1 provided to all parties). A Step 1 solution is provided herein. Steps 2 to 5 will be discussed in the Brief.
   b. Wastewater District Schedules. This party plans to accept AAWC's Consolidation Wastewater Rate Schedules, therefore no Wastewater Consolidated is presented.

c. Miscellaneous Fees and Charge Schedule. These are in the Direct Testimony and will be discussed further in the Brief.

Attachment A

ASSUMPTIONS IN THE MAGRUDER CONSOLIDATED RATES MODEL

ARIZONA WATER COMPANY CONSOLIDATED RATES MODEL - WATER

Percentage of Consolidated Rates Step 1

Sun City	100.000%
SCW	100.000%
Agua Fria	100.000%
Anthem	100.000%
Tubac	100.000%
Mohave	100.000%
Havasu	100.000%
PV	100.000%

Residential Rates and Blocks

5/8" - 3/4"		
Customer Charge		$14.50
First	3,000	$0.9800
Next	7,000	$2.5000
Next	15,000	$3.0000
Next	20,000	$3.5000
Over	45,000	$4.0000
1"		
Customer Charge		$20.00
First	3,000	$0.9800
Next	7,000	$2.5000
Next	15,000	$3.0000
Next	30,000	$3.5000
Over	50,000	$4.0000
1 1/2"		
Customer Charge		$70.00
First	3,000	$0.9800
Next	22,000	$2.5000
Next	25,000	$3.0000
Next	50,000	$3.5000
Over	100,000	$4.0000
2"		
Customer Charge		$110.00
First	30,000	$1.7500
Next	70,000	$2.5000
Next	100,000	$3.0000
Next	100,000	$3.5000
Over	300,000	$4.0000
3"		
Customer Charge		$245.00
First	25,000	$2.0000
Next	75,000	$2.5000
Next	100,000	$3.0000

Commercial, OPA, Turf Rates and Blocks

5/8" - 3/4"		
Customer Charge		$17.50
First	3,000	$0.9800
Next or First	7,000	2.5000
Next	15,000	3.0000
Next	25,000	3.5000
Over	45,000	4.0000
1"		
Customer Charge		$30.00
First		$0.9800
Next or First	10,000	2.5000
Next	15,000	3.0000
Next	40,000	3.5000
Over	75,000	4.0000
1 1/2"		
Customer Charge		$70.00
First		$0.9800
Next or First	25,000	2.5000
Next	25,000	3.0000
Next	150,000	3.5000
Over	200,000	4.0000
2"		
Customer Charge		$110.00
First		$2.5000
Next or First	100,000	2.5000
Next	100,000	3.0000
Next	300,000	3.5000
Over	500,000	4.0000
3"		
Customer Charge		$245.00
First		$2.5000
Next or First	1,000,000	2.5000
Next	2,000,000	3.0000

Next	100,000	$3.5000	Next	3,000,000	3.5000
Over	300,000	$4.0000	Over	6,000,000	4.0000
4"			**4"**		
Customer Charge		$395.00	Customer Charge		$395.00
First	100,000	$2.0000	First		$2.5000
Next	100,000	$2.5000	Next or First	100,000	2.5000
Next	100,000	$3.0000	Next	200,000	3.0000
Next	200,000	$3.5000	Next	1,700,000	3.5000
Over	500,000	$4.0000	Over	3,500,000	4.0000
6"			**6"**		
Customer Charge		$700.00	Customer Charge		$700.00
First	100,000	$2.0000	First		$2.5000
Next	100,000	$2.5000	Next or First	1,000,000	2.5000
Next	250,000	$3.0000	Next	3,000,000	3.0000
Next	500,000	$3.5000	Next	3,000,000	3.5000
Over	950,000	$4.0000	Over	7,000,000	4.0000

Apartments **Not Consolidated - Present rates in effect.**

Non-Potable Rate

Customer Charge	$ -
All Consumption	$1.2700

Private Fire Rate

2"	
Customer Charge	$10.00
3"	
Customer Charge	$22.50
4"	
Customer Charge	$40.00
6"	
Customer Charge	$90.00
8"	
Customer Charge	$160.00
10"	
Customer Charge	$250.00
12"	
Customer Charge	$360.00

Hydrants

Customer Charge	$14.00

Water Districts Included in Rate Consolidation

	Included? Yes=1, No=0
Sun City	1
SCW	1
Agua Fria	1
Anthem	1
Tubac	1
Mohave	1
Havasu	1
PV	1

Note: Extraneous blank lines and Tab Color lines were removed.

ARIZONA AMERICAN WATER COMPANY
Summary of Consolidated Water Rates

	Revenue from Consolidated Rates	Target Revenue	Difference
Residential (a)	55,828,012	56,101,076	(273,065)
Commercial	13,410,100	12,510,487	899,613
OPA (b)	391,571	205,193	186,378
Sale For Resale (c)	283,898	279,308	4,590
Misc- Non-Potable	1,047,982	2,178,733	(1,130,752)
Private Fire	637,590	436,640	200,950
Total	71,599,152	71,711,438	(112,286)

(a) Includes Multi-family - rates are not consolidated.
(b) OPA in Aqua Fria (State Prison) and in Mohave consolidated to Commercial rates.
(c) Includes Peoria Public Interruptible in Sun City, PI Surprise and Water Contract in Agua Fria and City of Phoenix in Anthem whose rates are not consolidated.

Note: The above summary shows that the Target Revenue is $112,286 short of meeting the total revenue from the proposed Consolidated Rate. This was deliberate as an amount more than $112,000 was being proposed by both the Commission Staff and RUCO to be deleted from the Target Revenue, thus having the Target Revenue exceeding the Income received by Consolidated Rates. If this was not obtained, then adjusting the rates listed could be slightly modified to make this happen.

Appendix 4
For Santa Cruz County:

How to Apply for Low Income Utility Rates that may REDUCE YOUR UTILITY BILLS by $200 or more in 2015 and 2016

To **QUALIFY** the **gross income** for the people in the household must be **LESS THAN** the amount below.

NUMBER OF PEOPLE IN THE HOUSEHOLD	Annual Gross Income at or UNDER	Monthly total income at or UNDER	Semi-Monthly income at or UNDER	Bi-Weekly income at or UNDER	Weekly income at or UNDER
1	**$ 17,235**	$ 1,436.25	$ 718.13	$ 662.88	$ 331.44
2	**$ 23,265**	$ 1938.75	$ 969.38	$ 894.81	$ 447.40
3	**$ 29,295**	$ 2,441.25	$ 1,110.63	$ 1,126.73	$ 563.37
4	**$ 35,325**	**$ 2,943.75**	**$ 1,471.88**	**$ 1,358.66**	**$ 679.33**
5	**$ 41,355**	$ 3,446.25	$ 1,723.13	$ 1,590.58	$ 795.29
6	**$ 47,385**	$ 3,948.75	$ 1,974.38	$ 1,821.46	$ 910.67
7	**$ 53,415**	$ 4,451.25	$ 2,226.65	$ 2,054.44	$ 1,027.21
More than 7, **plus**	**+ $ 6,030 per person**	+ $ 502.25 per person	+ 251.25 per person	+ $ 231.92 per person	+ $115.96 per person

(Effective 1 July 2013-30 June 2014, Santa Cruz County)

The columns for semi-monthly apply when paychecks are issued on the first and fifteenth of the month, while bi-weekly is when paychecks are every other week

OR

IF your family (household) **already qualifies** for ACCCS, Food Stamps (SNAP), SSI, or Head Start, you have been already qualified for these low-income utility rates.

HOW Can YOU APPLY for Low Income Utility Rates in Santa Cruz County?

CALL the phone number below for your utility(ies) and **REQUEST AN APPLICATION** for LOW INCOME Rates. They probably will ask if you are on various low income programs **AND** your what is your

1. **ANNUAL GROSS INCOME** $_____ from your ***2013 Federal Income Tax Return*** and the
2. **NUMBER OF PEOPLE IN YOUR HOUSEHOLD** _____. If less than in table above, **you qualify**:

For Low Income ELECTRICITY RATES:

UNS Electric **877-837-4968 (CARES and CARES-M Program, up to $11.50 per month)**
SSVEC **800-422-3275 (ask for a "Helping Hand Program" application)**
TRICO **520-682-0024 (ask for a "Helping Hand Program" application)**

For Low Income NATURAL GAS RATES (about 30% reduction in winter months):

UNS Gas **877-837-4968 (CARES and CARES-M Program, to $18 per winter month)**

For Low Income LANDLINE TELEPHONE RATES and INTERNET BASICS:

CenturyLink **800-244-1111 (ask for Lifeline rates, save ~$7.95/month = $85/year)**
CenturyLink **800-244-1111 (ask for basic Broadband Assistance @ $9.95/month)**

For Low Income WATER and WASTEWATER RATES:

Liberty Utilities **520-281-7000 (ask for Alternative Rates for Water and Wastewater), save 15%**

Step 1. ASK for an APPLICATION to be sent to your address (same as the utility bill).
Step 2. When you receive the APPLICATION, FILL IT OUT, with gross income above.
Step 3. The person's name on the bill MUST SIGN and you MUST include your ACCOUNT NUMBER.
Step 4. MAIL the APPLICATION to the correct address. Most utilities qualify for 2 years.

For Pima County:

How to Apply for Low Income Utility Rates that may REDUCE YOUR UTILITY BILLS by $200 or more in 2015 and 2016

To **QUALIFY** the **gross income** for the people in the household must be **LESS THAN** the amount below.

NUMBER OF PEOPLE IN THE HOUSEHOLD	Annual Gross Income at or UNDER	Monthly total income at or UNDER	Semi-Monthly income at or UNDER	Bi-Weekly income at or UNDER	Weekly income at or UNDER
1	**$ 17,235**	$ 1,436.25	$ 718.13	$ 662.88	$ 331.44
2	**$ 23,265**	$ 1938.75	$ 969.38	$ 894.81	$ 447.40
3	**$ 29,295**	$ 2,441.25	$ 1,110.63	$ 1,126.73	$ 563.37
4	**$ 35,325**	**$ 2,943.75**	**$ 1,471.88**	**$ 1,358.66**	**$ 679.33**
5	**$ 41,355**	$ 3,446.25	$ 1,723.13	$ 1,590.58	$ 795.29
6	**$ 47,385**	$ 3,948.75	$ 1,974.38	$ 1,821.46	$ 910.67
7	**$ 53,415**	$ 4,451.25	$ 2,226.65	$ 2,054.44	$ 1,027.21
More than 7, **plus**	**+ $ 6,030 per person**	+ $ 502.25 per person	+ 251.25 per person	+ $ 231.92 per person	+ $115.96 per person

(Effective 1 July 2013-30 June 2014, Pima County)

The columns for semi-monthly apply when paychecks are issued on the first and fifteenth of the month, while bi-weekly paychecks are every other week **OR** if your family **already qualifies** for ACCCS, Food Stamps (SNAP), SSI, Head Start, etc., you have qualified for these low-income utility rates.

HOW Can YOU APPLY for Low Income Utility Rates in PIMA County?

CALL the phone number below for your utility and **REQUEST AN APPLICATION** for LOW INCOME Rates. They probably will ask if you are on various low income programs **AND** your what is your

1. **ANNUAL GROSS INCOME** $_____ from your ***2014 Federal Income Tax Return*** and the
2. **NUMBER OF PEOPLE IN YOUR HOUSEHOLD** _____. If less than in table, you qualify:

For Low Income ELECTRICITY RATES

TEP **623-7711 (ask for Life Line Discount Program, up to $8 credit/month)**
TRICO **682-0024 (ask for "Helping Hand" Program application)**

For Low Income NATURAL GAS RATES (about 30% reduction in winter months)

Southwest Gas **1-800-428-7342 (Low Income Rate Assistance Program, LIRA)**
1-800-860-6020 (Low Income Energy Conservation Program, LIEC)
1-800-582-5706 (Low Income Home Energy Assist. Program, LIHEAP)
UNS Gas **1-877-837-4968 (CARES and CARES-M Program, to $18 per winter month)**

For Low Income LANDLINE (only, not wireless) TELEPHONE RATES

Quest **1-800-582-5706 (DES-CPIP program, $7.95 credit/month = $85/year)**
1-800-244-1111 (Tribal Lifeline/Tribal Link-up Program rates at $1/month)

For Low Income WATER RATES

City of Tucson Water **791-3242**

Step 1. ASK for an APPLICATION to be sent to your address (same as the utility bill).
Step 2. When you receive the APPLICATION, FILL IT OUT, with gross income above.
Step 3. The person's name on the bill MUST SIGN and you MUST include your ACCOUNT NUMBER.
Step 4. MAIL the APPLICATION to the correct address. Most utilities qualify for 2 years.