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ARIZONA CORP. COMM  
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IN THE MATTER OF THE APPLICATION OF ARIZONA-AMERICAN WATER COMPANY, AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES BASED THEREON FOR UTILITY SERVICE BY ITS AGUA FRIA WATER DISTRICT, HAVASU WATER DISTRICT, MOHAVE WATER DISTRICT, PARADISE VALLEY WATER DISTRICT, SUN CITY WEST WATER DISTRICT, AND TUBAC WATER DISTRICT

Docket No. W-01303A-08-0227

IN THE MATTER OF THE APPLICATION OF ARIZONA-AMERICAN WATER COMPANY, AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES BASED THEREON FOR UTILITY SERVICE BY ITS MOHAVE WASTEWATER DISTRICT

Docket No. SW-01303A-08-0227

**Notice of Filing and Direct Testimony (Issues)**

by

**Marshall Magruder**

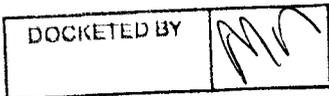
This filing has been mailed to known and interested parties shown in the Service List.

Respectfully submitted on this 9<sup>th</sup> day of January 2009

Arizona Corporation Commission

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MARSHALL MAGRUDER

By Marshall Magruder

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**DIRECT TESTIMONY**  
**(Issues)**

**by**

**MARSHALL MAGRUDER**

**9 January 2009**

**In**

**ACC Docket No. W-01303A-08-0227**

**and**

**ACC Docket No. SW-01303A-08-0227**

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1 **Part 1 – BACKGROUND AND INTRODUCTION**

2  
3 **1.1 INTRODUCTION**

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

5 A. My name is Peyton Marshall Magruder, Jr. I am a customer and ratepayer for Arizona-  
6 American Water Company, a public service company that serves the Tubac Water District, where I  
7 been active in various community projects including the Tubac Community Center Foundation.

8 I have several part-time jobs including as a Senior Scientist and Information Systems  
9 Architect for Integrated Systems Improvement Services (ISIS), Inc. in Sierra Vista, Arizona, with  
10 work involving information warfare, systems architectures, electronic and communications  
11 intelligence systems test plans, information assurance, and information technology services. I am  
12 Systems Engineer and Training Systems consultant for Imagine CBT, Inc., at Raytheon Naval and  
13 Maritime Systems in San Diego with engineering work involving US and Royal Navy aircraft carrier  
14 and amphibious warfare ship's command, control, communications, computers, intelligence,  
15 surveillance and reconnaissance (C4ISR) systems, and training systems.

16 In early 2008 I assisted in preparation of a proposal to the Department of Homeland Security  
17 involving creating a National Training Center for the US Border Patrol in Dallas, Texas, and training  
18 person operating and maintaining the Secure Border Initiative (SBI) Program's "Virtual Fence",  
19 initially in the Tucson Sector where over 50% of both drug and undocumented aliens enter the U.S.

20 I also work as a Senior Tax Advisor Level 3 for H&R Block in Tucson, several days a week.

21 I retired from Raytheon/Hughes Aircraft Company as a Senior Systems Engineer after nearly  
22 18 years and am a retired Naval Officer with over 25 years service. Please see Attachment A for  
23 additional work experience descriptions.

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

27 In addition, I am the Vice President of the Martin B-26 Marauder Historical Society and am  
28 the Fund Raising Chairman for an ongoing five million dollar "Lasting Legacy" fund drive to endow  
29 the MHS Marauder International Archives and restoration of a B-26 Marauder at the Pima Air and  
30 Space Museum/Arizona Aerospace Foundation, in Tucson.

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

32 **Q. Have you previously testified before this Commission?**

33 **A.** Yes, including several appearances in the following:

34 a. Arizona Power Plant and Transmission Line Siting Case No. 111 (TEP'CEC Application);  
35

- 1 b. ACC Docket No. E-01032C-00-0951, the Citizens Purchase Power and Fuel Adjustment  
2 Clause (PPFAC) hearings;
- 3 c. ACC Docket Nos. E-01033A/E-01032C/ and G-01032C-02-0914, the UniSource-Citizens  
4 Acquisition hearings;
- 5 d. ACC Docket No. E-04230-03-0933, the UniSource-Sahuaro Acquisition hearings;
- 6 e. ACC Docket No. E-01032A-99-0401, Service Quality issues, analysis of transmission  
7 alternatives and proposed plan of action in Santa Cruz County, reopened in 2005;
- 8 f. ACC Docket No. G-04204A-06-0463, a UNS Gas Rate Case;
- 9 g. ACC Docket No. E-04204A-06-0783 a UNS Electric Rate Case; and
- 10 h. ACC Open Meetings including gas line safety hearings and various workshops.
- 11 In cases a to g. above I filed testimony and made appearances.

12  
13 **Q. What is your educational background and technical society memberships?**

14 **A.** My latest degree is a Master of Science in System Management (MSSM) with majors in  
15 human factors and R&D from the University of Southern California with "A" in every course. The first  
16 graduate degree was awarded by the Naval Postgraduate School, Monterey, California, in Physical  
17 Oceanography, the study of the physics of the ocean with several electrical engineering (EE)  
18 courses involving underwater acoustics. In addition, advanced graduate-level EE courses at the  
19 University of Rhode Island involving acoustic array design, electronic beam forming and steering  
20 have been taken. Initially, a Bachelor of Science Degree and Commission in the United States Navy  
21 was awarded by the United States Naval Academy with extra courses in Operations  
22 Research/Analysis and the History of Russian Naval Tactics. I have been a member of the American  
23 Society of Naval Engineers, the premier naval shipbuilding organization. I am a life member of the  
24 Naval Academy Alumni Association, the Navy League, and the Naval Surface Warfare Association  
25 and a member of the Armed Forces Communications-Electronics Association (AFCEA) and the  
26 Naval Submarine League. I have taken many additional courses included in Attachment A.

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

28 **A.** This is the engineer who coordinates, plans, schedules, integrates, and manages engineers  
29 of various other disciplines. The Systems Engineer is the technical lead or technical director for a  
30 reasonable sized project who determines the customer's need and analyzes the requirements,  
31 usually writes the system and subsystem specifications, prepares and makes important trade-off  
32 technical decisions, manages the entire system development process and leads the system and  
33 subsystem tests to ensure the product (e.g., the system) accomplishes the customer's requirements  
34 and satisfies the need and requirements. The integration and synthesis of discipline uses inputs  
35 from mechanical, electrical, civil, safety, human factors, integrated logistics, maintenance, reliability,

1 operator and maintenance training development, aerospace, acoustic, computer systems, software,  
2 hardware, structural, reliability, production, test and test equipment engineers and other specialist  
3 disciplines are the primary roles for a systems engineer. System Engineering tasks usually involve  
4 developing the system architecture, evaluating the design, performing trade-studies, determining  
5 performance criteria, continually updating design characteristics, managing cost-schedule-  
6 performance risks, estimating costs, and tracking and monitoring all systems tasks assigned. The  
7 Systems Engineer ensures adequate parts are ordered and spares built, oversees the assembly  
8 process, develops and manages unit and system tests, ensures the product is properly packaged,  
9 transported, delivered, with appropriate operational and logistics support, training and both  
10 preventative and corrective maintenance planning established to ensure the customer receives a  
11 quality product, on-time, within-budget and achieves all performance criteria. As the Systems  
12 Engineer for dozens of very different and diverse projects summarized in Appendix A. The Tubac  
13 water system is a rather simple, straightforward system, compared to these more complex ones.

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

15 **A.** I appeared before the Commission's Public Comments session during the last AAWC rate  
16 case and presented a paper concerning rate structure, attached as Appendix B, Exhibits, Exhibit  
17 MM-1, at that time. Other than the actual approved rate increased in that case, these comments,  
18 especially involving the magnitude of proposed rates in the previous case and in this case are  
19 extreme. In general, my interest in these matters will continue looking at viable alternatives and  
20 efficiencies to reduce the overall rate impacts. As shown in Exhibit MM-1, conservation measures  
21 should be used at a primary component for rate design. Conservation of our surface and ground  
22 water is critical for human survival in Arizona.

23 **1.2 PURPOSE OF TESTIMONY**

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

25 **A.** The purpose of this testimony is to present several issues that are important for the Tubac  
26 Water District, and in most cases, for all AAWC Water Districts. The following issues are discussed  
27 in this testimony. These are presented in Part II that follows.

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

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

30 **Q. Will you have any witnesses on your behalf?**

31 **A.** There are some individuals in Tubac who have expressed interest in participating with me. I  
32 would like to retain the option to include their pre-filed testimony or oral testimony as witness when I  
33 present my case. During the pre-hearing Procedural Conference, I will make this clear to all parties.  
34  
35

1 **Part 2 – ISSUES IN THIS TESTIMONY**

2 **2.0 SUMMARY OF ISSUES.**

3  
4 This Testimony is submitted according to the second Rate Case Procedural Order of 8 August 2008.  
5 As required by the Rate Case Procedural Order, the scope of Part I of my testimony covers various  
6 “issues”. The following are issues identified to date for these proceedings:

7 Issue (Rate Design) No. 1. Should the goal of water conservation significantly drive water  
8 volumetric rates by increasing the cost of water significantly as consumption increases?

9 Issue (Rate Design) No. 2. Should future capital expenses for the Tubac Arsenic Treatment  
10 Plant be considered in this proceeding?

11 Issue (Rate Design) No. 3. Should all AAWC Water Districts be consolidated?

12 Issue (Cost) No. 4. Should ratepayers fund pre-hearing AAWC witness training?

13 At present, no issues for AAWC Sewage Water Districts are included in this testimony.  
14

15 **2.1 ISSUE (Rate Design) No. 1.**

16 **SHOULD THE GOAL OF WATER VOLUME RATES BE DESIGNED TO**  
17 **ENCOURAGE WATER CONSERVATION?**  
18

19 **Q. Why do you consider water conservation critical?**

20 **A.** The Tubac Water District is located within the ADWR Santa Cruz Active Management Area  
21 (SCAMA) that has two unique management goals established when the Arizona State Legislature  
22 created it. These SCAMA goals include:

23 a. Maintaining sustainability

24 b. No changes in water table

25 Maintaining Sustainability.

26 The SCAMA is the only Water Management Area that is presently sustaining its ground water  
27 in Arizona. As stated in the 2005 Santa Cruz County Comprehensive Plan, see Exhibit MM-3, when  
28 the total population in the Upper Santa Cruz River Watershed in the SCAMA adds approximately  
29 31,000 people over the 2004 population, subdivisions will not be issued Assured Water Supply  
30 (AWS) certifications. Water use in the SCAMA is not permitted to become unsustainable. Thus,  
31 protection of our “ground” water is critical. An important component is for water companies to  
32 cooperate and collaborate in this matter. AAWC Tubac Water District has AWS certifications for all  
33 its present customers, but if additional development occurs, eventually, AWS certifications will not be  
34 available. This is unlike the other AMA, such as Tucson, Phoenix or Prescott, as they aren’t required  
35

1 to be sustainable until 2025, and reaching that goal is beyond the anticipated tenure of today's  
2 politicians. SCAMA must retain sustainability.

3 No Changes in the Water Table.

4 The "rule" for meeting this goal is being submitted to the Arizona Attorney General by ADWR.  
5 In general, SCAMA does not have an aquifer like most other AMAs, but has about six identified  
6 "micro-basins" that fill and drain, as underground water flows from the southern Mexican border to  
7 the boundary of the Pima AMA, several miles north of the Santa Cruz-Pima County line. The  
8 SCAMA must continue to provide its normal water volume to the Tucson aquifer, at this boundary,  
9 which has been described as sort of a Niagara waterfall from our shallow micro-basins. In each  
10 micro-basin, also described as underground pools of water with small waterfalls from one basin to  
11 the next, the water table will increase and decrease significantly between one rainstorm and the  
12 next. Some "pools" will change from an empty to full state and overflow into the next pool. This  
13 causes variations in the depth of water in wells that have been measured over many decades. The  
14 proposed rule is to use the standard deviation of these well water depths, using a 100-year Monte  
15 Carlo model, to determine impacts of new water users on the system before granting AWC  
16 certifications.

17 **Q. How can AAWC Tubac Water District participate with SCAMA's goals?**

18 **A.** If a rate structure was implemented in which the cost per 1000 gallons significantly increased  
19 as water use increased, customers would have a financial incentive to conserve and average  
20 household use would decline. The present structure very slightly increases the cost per 1,000  
21 gallons only moderately, and thus does not sufficiently encourage users to reduce consumption.

22 Thus a complete restructure of rates is required to effectively use price signals to encourage  
23 conservation. Minor changes will not make water conservation a rate-driver.  
24

25 **Q. Do you know where increasing costs per 1,000 is being implemented for this purpose?**

26 **A.** Yes. Adjacent to the Tubac Water District has a rate structure shown in Exhibit MM-2 in  
27 Appendix B. The rates in this water company increase significantly, by 500%, from lower water  
28 monthly water usage. When compared, in Exhibit MM-2, Table 1 (copied below), at highest water  
29 usage of 20,000 gallons, the monthly volumetric bill will be over 400% than the present rates and  
30 over 200% higher than even the proposed volumetric charge. With this approach, the "price signals"  
31 must be noted and water conservation observed by these customers. This comparison does not  
32 include the proposed basic charge or the proposed Arsenic Cost Recovery Surcharges (basic and  
33 volumetric) for the rates shown in Exhibit MM-2 Table 1 below.  
34  
35

**Table 1 – Rate Comparison of Monthly ¾-inch Residential Rates at Various Volume Levels for AAWC-Tubac Water District and ASPOA, Basic Service Charge and Arsenic Cost Recovery Surcharges (ACRS) [from Exhibit MM-2]**

Monthly Water Usage	AAWC-Tubac Water District		ASPOA
	Present	Proposed	
5,000 gallons	\$10.41	\$19.97	\$20.00
10,000 gallons	\$24.66	\$44.22	\$64.00
15,000 gallons	\$38.91	\$68.47	\$114.00
20,000 gallons	\$53.16	\$92.72	\$214.00
<b>Service Charge</b>			
Basic Service	\$19.68	\$32.50	\$20.00
<b>Arsenic Cost Recovery Surcharge (ACRS)</b>			
Basic ACRS Charge	\$0.00	\$25.98/month	\$0.00
Volumetric ACRS Charge	\$0.00	\$3.14/1000 gallons	\$0.00

**Q. What happens when the Service Charge and Arsenic Cost Recovery Surcharges are in a typical monthly bill?**

**A.** As shown in Table 2 of Magruder Exhibit MM-2, total monthly bills are compared, including all water delivery charges (copied below).

**Table 2 – Total Monthly Bill Comparisons between ¾-inch Residential Rates for AAWC Water District and ASPOA [from Exhibit MM-2]**

Monthly Water Usage	AAWC-Tubac Water District		ASPOA
	Present	Proposed	
5,000 gallons	\$30.09	\$94.15	\$40.00
10,000 gallons	\$44.34	\$134.10	\$104.00
15,000 gallons	\$58.59	\$174.05	\$134.00
20,000 gallons	\$72.84	\$214.00	\$234.00

**Q. What is your conclusion about water conservation impacts on rates?**

**A.** With monthly bills in Table 2, the significant changes will drive water conservation, the rationale of using increasing block structure rate designs. The virtually flat block structure proposed will not produce water conservation. An increasing block structure with significant rate changes is an important element in conserving water and is recommended.

**Q. Will you provide the rate structure costs when submitting your rate structure Testimony?**

**A.** No. On 17 December 2008, the company informed all parties it would provide its spreadsheet program to the parties on 9 February with its Rebuttal.<sup>1</sup> The rate structure proposals are due 20 January. It will not be possible to determine options for rate structures until after 9 February 2009.

<sup>1</sup> AAWC letter to Parties of the Docket, "Rate Consolidations" filed 17 December 2008.

1 **2.2 ISSUE (Rate Design) No. 2.**

2 **SHOULD ANY FUTURE CAPITAL EXPENSES FOR THE TUBAC ARSENIC**  
3 **TREATMENT PLANT BE CONSIDERED IN THIS RATE CASE?**  
4

5 **Q. Why do you oppose including the Tubac Arsenic Treatment Plant costs in this case?**

6 **A.** There are several reasons.

7 First, the recent quarterly average Arsenic levels have decreased significantly since the one  
8 case at 36 ppb cited in this summer's EPA letter of July 2008. The company reported to all Tubac  
9 District ratepayers average quarterly readings as follows:

<u>Quarter</u>	<u>Average Arsenic Reading</u>
3 <sup>rd</sup> of 2008	24 ppb
4 <sup>th</sup> of 2008	25 ppb

10  
11  
12 Based on this data, it should be possible for the company to request a review of the EPA's denial of  
13 a three-year extension for compliance as these results are considerably below the 35 ppb maximum  
14 required by the EPA.

15 Second, this plant has not had its design presented to local ratepayers, and discussed in  
16 terms of its features, benefits, costs, and architectural landscaping needs that might have  
17 environmental impacts. AAWC has promised it would let us know this kind of information before it  
18 when forward.

19 Third, this construction project has not yet started, and obviously is well outside the "test  
20 year" thus, should not be qualified for rate base treatment.

21 Fourth, Mr. Broderick's Testimony of 20 July 2008, on page 25 stated "a developer will  
22 contribute approximately \$1 million toward the facility." In response to a data request<sup>2</sup>, it was found  
23 that no agreement exists with this developer, that will also solve this "developer's fire flow pumping  
24 and water storage requirements" that is obviously independent of the arsenic removal process for  
25 drinking water. The AAWC response further describes the developer's "nearing completion of a  
26 water master plan and cost analysis to evaluate their various alternatives to provide required  
27 pumping and storage. Once an alternative is chosen, an agreement will be pursued between  
28 parties." And the AAWC response also stated, "No agreement exists at this time, and one may be  
29 not finalized by the time of the hearing."

30 Fifth, the costs for this facility are all outside the Test Year, thus the "used and useful"  
31 assessment cannot be made.

32 Based on these five factors:  
33  
34

35 <sup>2</sup> See Exhibit MM-4 in Appendix B for Magruder Data Request MM 1-5. All quotes in this issue are from that Data Request.

- 1 (1) Unsure of future arsenic impact and requirements with EPA;
- 2 (2) Facility design has not been made public and appears to be incomplete;
- 3 (3) Project not yet started construction;
- 4 (4) Unknown developer agreements and an "approximate" \$1 million contribution toward the
- 5 cost of the Arsenic Treatment Facility; and
- 6 (5) Expenses are outside the Test Year, have not met the required "Prudency" or "Used and
- 7 Useful" assessments, that can not now be completed by the ACC Staff, as required,
- 8 before capital costs for the Tubac Arsenic Treatment Facility are included in rates.

9 It is clear that both adequate and reliable information is not available to make any  
10 determinations impacting fair and reasonable rates.

11 Conclusion. A prudent decision concerning a Tubac Arsenic Treatment Facility cannot be  
12 made before these proceedings have been completed.

13 Recommendations. That no expenses for an Arsenic Treatment Facility for the Tubac Water  
14 District and that implementation of any ACRM stages or costs be considered in these proceedings  
15 but in another proceeding when the supporting facts are known and reviewed.



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2.4 ISSUE (Cost No. 1).

**SHOULD RATEPAYERS FUND PRE-HEARING AAWC WITNESS TRAINING?**

**Q.** What has AAWC claimed as necessary "rate case costs" that appear unreasonable?

**A.** Mr. Broderick's Testimony of 20 July 2008, in Exhibit TMB-3 on page 1, shows a rate case expense of \$10,000 for "Witness Training." In response to a Data Request, AAWC provided information that the goals for this "witness training" are to "enable a Company employee to understand the basics of testifying before the ACC."<sup>3</sup> These Company employees are those who have submitted direct, rebuttal or rejoinder testimony. The justification for these expenses is to train these witnesses to "answer questions accurately, truthfully, and concisely" which will "benefit the rate payers who ultimately pay the costs for Company attorney(s), transcripts, briefs, and, perhaps their own attorney(s) if they are part of an intervention."

In my opinion, the pre-filed testimonies also have to include answers that are accurate, truthful and concise. Thus, thus there appears to be a conflict in these statements, or maybe this training for senior management of AAWC, all of whom appear to have been before the Commission before, is more to coach or to agree upon what and what not to say. Implications of such practices are that unethical collaboration between witnesses maybe construed. Even though the company did not state this happened, an appearance of coaching and collaboration is there.

As a ratepayer, I strongly feel that this is a company expense and is more to protect their prior statements or oral statements on the stand, than it is to reduce attorney fees of the company or any other party.

**Conclusion.** There is no evidence to support funding this expense by the ratepayers.

**Recommendation.** That all "Witness Training" expenses as a rate case expense be removed from any consideration in this proceeding.

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<sup>3</sup> See Exhibit MM-5 in Appendix B for Magruder Data Request MM-13. All quotes in this issue are from that Data Request.

1 **Appendix A**

2 **Resume of Marshall Magruder**

3 **EDUCATION**

4  
5 MS in Systems Management, University of Southern California (1981); MS in Physical Oceanography, Naval  
6 Postgraduate School (1970; BS, US Naval Academy (1962)

7 **EXPERIENCE**

8 Over 23 years as Senior Systems Engineer as an associated contractor, consultant, Raytheon-Hughes in  
9 systems engineering, training and naval systems, simulation and modeling in C4I; total over 40 years experience  
10 with over 20 years of service with the US Navy

- 11 • **Large-system development** at all levels  
12 **From** pursuit, analysis, winning strategy, Request for Proposal (RFP) evaluation, proposal management,  
13 system requirements analysis, architectures, specifications, design synthesis, trade-off studies,  
14 requirements allocation tracking,  
15 **To** system, level test planning, deployment, implementation, through sign-off,  
16 **For** technical systems of all complexities.
- 17 • **Developed** Antisubmarine Warfare (ASW), Electronic Warfare (EW), Command, Control, Communications,  
18 Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) operational concepts, procedures, and  
19 tactical employment.
- 20 • **Used, operated, and planned** Navy, Army, Air Force, Coast Guard, Joint systems, world-wide.
- 21 • **Coordinated multi-platform employment** from sensor to tactical platform to Battle Force to Theater levels.
- 22 • **Qualified systems engineer/manager** for trainers, artillery, Command and Control (C2), countermeasures,  
23 for any platform.
- 24 • **Specialties:** environmental analysis, documentation, sensor/weapon predictions, C4ISR, Electromagnetic  
25 and Emission Control (EMCON) decision criteria.
- 26 • **Battle Force/Group Tactical Action Officer (TAO)** on 8 aircraft carriers, TAO Instructor, 20 months combat  
27 experience.

28 **RECENT (ImagineCBT, ISIS, Raytheon, Hughes, and other) POSITIONS**

29 **C4I Architect and C4I Support Plan Lead** for the Carrier for the 21<sup>st</sup> Century (CVX) Delivery Task.

- 30 • Completed *CVX C4I Support Plan, v1.0*, Joint Operational Architecture development for Joint and Naval staff  
31 space allocations for CVX (1999) and Joint Command and Control (JCC) ship (2002).
- 32 • Drafted *CVN 77 Electronics System Integrator (ESI) Statement of Work (SOW)* for WBS Group 400 tasks and  
33 IPTs (1999), *Integrated Management Plan*; Royal Navy Future Aircraft Carrier WBS proposal (2002)

34 **Lead Systems Engineer, Operations Analyst and Site Survey Leader** for Saudi Arabian Minister of Defense  
35 National Operational Command Centers and C4I System (completed August 1997).

- Completed *System Specification, System Description Document, 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. (proposal evaluated A++, won Phase I, Phase II delayed then restructured)
- Anti-submarine Warfare Team Trainer (Device 20A66), an integrated, multi-ship, submarine and aircraft  
training system for Naval Task Groups. (\$56M contract, best technical, lowest cost)

- 1 • Electronic Warfare Coordination Module (EWCM), an Intelligence/EW spectrum planning and management  
2 system for Task Force Command Centers. (won Phase I, best technical)

3 **Assistant Program Manager for the Training Effectiveness Subsystem, Device 20A66**

- 4 • Performance Measurement Subsystem, observed real-time performance of operators, teams, multi-ship and  
5 aircraft units during exercises and compared to the standard

6 **Senior Systems Engineer** responsible for writing **specifications** in following **proposals**:

- 7 • Fire Support Combined Arms Team Trainer (FSCATT) System Specification, a US Army field artillery multiple  
8 cannon and battery training system. (awarded \$118M contract, still under contract)  
9 • Warfighter's Simulation 2000 (WARSIM 2000) System Specification, a US Army Force XXI Century battalion  
10 to theater levels, training system with actual C4I systems. (won Phase I)  
11 • Tactical Combat Training System, (TCTS) Exercise Execution Software Requirements Specification (SRS) for  
12 simulation and computer models to run real-time, driving sensors, weapons and links on 35 ships, 100  
13 aircraft and submarines (won Phase I contract, wrote SRS in Phase 2 proposal)

14 **DETAILED DESCRIPTIONS OF EXPERIENCE**

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

17 **April 2000 to present – ISIS, Inc., primarily as Senior Scientist, Information System Architect, Systems  
18 Engineer, Training Systems Analyst and Requirements Analyst.**

19 **Department of Interior Management, Organization and Business Improvement Services (MOBIS) and  
20 Professional Engineering Services (PES) proposal analysis (June 2005)**, prepared a detailed  
21 requirements and tasks analysis of the RFP) and proposal plan.

22 **General Accounting Office (GAO) (May 2005 – present)**, reviewed and prepared training system  
23 development and professional engineering services (PES processes and job descriptions for category 69  
24 (training) proposal.

25 **Strategic Services and Support (S3) (April 2005-present)**, attended pre-solicitation conference for the  
26 Army Communications-Electronics Command (CECOM), Ft. Monmouth, New Jersey, waiting for formal  
27 request for a part of this \$19.25 billion program proposal.

28 **Total Engineering Information Services (TEIS) (Feb. – March, 2005)**, participated as proposal writer, pink  
29 and red team member with another company which is prime for an approximately \$12 million, multi-year,  
30 contract for the Army Information Systems Engineering Command, Ft. Huachuca, Arizona. Prepared TEIS  
31 Risk Management Plan for prime contractor. Presently ISIS is waiting for announcement of selected  
32 winners.

33 **Networthiness Certification (Jan. 2005-present)**, prepared proposal for the Army Network Command  
34 (NETCOM), awaiting RFP to respond for this several million dollar program involving over 3,200 Army  
35 computer programs at all Army installations, worldwide. Prepared Quality Control (QC) and Risk  
Management Plan.

**Cryptologic Support and Logistic Analysis (Oct. 2004-present)**, prepared proposal for the Army  
Communications-Electronics Command (CECOM), Ft. Huachuca, Arizona, waiting for formal request for  
proposal.

**Information Warfare Training (2001 - present)**, USAF Small Innovative Business R&D (SBIR) Phase I  
contract, to determine IW training requirements and measure performance in an intelligence, wargaming  
system, awaiting possible award for development of an Information Warfare training system for the USAF  
Information Warfare Aggressor Squadron.

**US Army Virtual Proving Ground (VPG) - Performed C4ISR Architecture Framework** development,  
implementation and documentation using the DoD *C4ISR Architecture Framework, v2.0* and for  
Operational, Technical and Systems architecture products. (2001-2002).

**Prepared C4ISR architecture framework proposals for U.S. South Command (USSOUTHCOM)  
Command Center**, Department of Defense Threat Reduction Agency (DTRA) Operational Command  
Center at an Army Command, Virginia, and Government Enterprise Architecture development for  
Department of Health and Human Services Command Center programs.

1 **April 2001 to present– C4I Architect, Operations Analyst and Systems Engineer** for Minister of Defence  
2 (UK) Future Aircraft Carrier (CVF) program, Raytheon Naval and Maritime Ship Systems (NAMS), San  
3 Diego, CA.

4 Prepared for Raytheon Naval Ship & Integrated Systems (San Diego) proposals in April and June  
5 2003 with Statement of Work (SOW), Data Item Descriptions (DIDs) and CDRLs for  
6 Architecture Assessments (Requirements, Testing) for ten functional mission areas, Global  
7 Information Grid (GIG) Evaluations in order for CVF to be interoperable with US Joint forces,  
8 and Levels of Information System Interoperability (LISI) using DoD LISI PAID (procedures,  
9 applications, infrastructure, data) attributes to determine internal and external interoperability  
10 assessments

11 Prepared proposal and performed contract for Raytheon C3I Systems (Fullerton, CA) for the Joint Command  
12 and Control Ship (JCC) *JCC Interoperability Study*, including report drafting and preparation, conference  
13 presentations and making recommendations to JCC Program Office for ensuring over 400 tactical, logistic,  
14 administrative, C4ISR applications work. (2001-02)

15 Prepared proposal and performed contract for Raytheon NAMS (San Diego) for *JCC Reconfiguration Study* to  
16 determine requirements to most effectively manage command (C4ISR) onboard JCC. (2001-02)

17 Provided architecture framework proposal inputs and evaluation for US Army Landwarrior III (Future Combat  
18 System) for Raytheon C3I Systems (Plano Texas)

19 Provided C4ISR and engineering analysis and proposal preparation for LHA(R), JCC, CVF and other NAMS  
20 (San Diego) ship programs (2000-03)

21 **October 2000 to Present (inactive) – MBA Instructor, University of Phoenix**, for “Operations Management  
22 for Total Quality” (BUS540) and “Managing R&D and Innovation Processes” (TMGT 540) courses  
23 Instructor.

24 Taught these courses in Nogales to Mexican maquiladores managers and in Tucson to Americans managers.

25 Qualified to teach “Program Management”

26 Plan to qualify as FlexNet (online) Instructor.

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

29 Performed C4I Support Plan analysis in order to understand the DoD C4I Support Plan requirements. Led to  
30 an understanding of the recent *DoD C4ISR Architecture Framework, v2.0* and its Operational, Technical  
31 and Systems architecture products.

32 Managed team for 3 months to draft and submit plan to NAVSEA (PMS-378) for two customer reviews.

33 Provided interface with CVX and Joint Command and Control (JCCX) Ship to combine architecture  
34 development for NAVSEA (PMS-377), drafted task schedule but funding not provided.

35 Proposed an approved Technical Instruction for “Reconfigurable Joint and Naval Staff Space Allocations” in  
order to start the CVX/JCC *Operational Architecture and Mission Essential Tasks* processes – completed  
early 1999. (3 of 14 proposed were approved for study)

Coordinated the AFCEA “Architecture Implementation Course” for RSC at our San Diego site.

Created and drafted CVN 77 *Electronic Systems Integrator (ESI) Statement of Work (SOW)* for the CVN 77  
ESI role and RFP in Spring 1999.

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

Established a draft CVN 77/CVX “Total Ship Systems Engineering (TSSE) Plan for our team.

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

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

Participated in establishing teaming arrangements with SPAWAR Systems Center, San Diego (SSC-SD).

The CVN 77 is the transition aircraft carrier from the *Nimitz* class, to be commissioned in FY 2008. Two other  
evolutionary aircraft carriers, CVNX-1 and CVNX-2 are to be commissioned in FY 2013 and FY 2018,  
respectively. The tenth CVX is planned for disposal in FY 2111. Overall manning will be reduced up to 1,740  
personnel. Up to 12 Joint, Naval, Combined and Coalition staffs may embark up to 1,000 augmentation  
personnel beyond the present capabilities. CVX can embark a Joint (Task) Force Commander with  
command and control systems for Operational-Theater and Tactical (service) levels. The ESI role involves  
integration of all C4ISR equipment, internal and external communications, navigation, sensors, fire control,  
weapons, and associated display and processing systems.

1 **January 1998 to present – H&R Block, Tax Specialist**, seasonal tax preparer (annually, January to April 15),  
2 part time, AARP Tax Consulting for the Elderly (pro bono) tax preparer, IRS qualified.

3 **August 1997 to April 1998 – DD 21 Requirements IPT Lead, Systems Verification and Test IPT Lead, and**  
4 **Initial Lead Systems Engineer** for the Hughes, then Raytheon, DD 21 Program for NAVSEA, PMS-500 –  
5 assigned the CVX Reduced Manning (Automation) Study that led to CVX C4I Support Plan after Raytheon  
6 sent “no bid” letter in April 1998.

7 Provided IPPD plans for all systems engineering functions, including workshop participation, for subsystem to  
8 total Ship System levels.

9 Managed two Integrated Product Teams (IPTs), about 3 months each, as additional DD 21 personnel were  
10 assigned.

11 Conducted Video Teleconferences with IPTs, issued weekly Agenda, Minutes, and led team meetings.

12 Attended Risk Management course and recommended RSC's Prophet™ risk management software tool for  
13 DD 21 and other integration programs.

14 Provided the initial *DD 21 Total Ship Systems Engineering (TSSE) Plan*.

15 Coordinated systems engineering modeling and simulation planning.

16 The Future Surface Combatant of the 21<sup>st</sup> Century (SC-21) Program consisted of both destroyers and cruisers,  
17 with the Land Attack Destroyer (DD 21) to be commissioned in FY2009 and an Air Dominance Cruiser in  
18 FY2018. I participated in the program implementation and maintenance of collaborative and synergy with  
19 both CVX and SC-21 programs and the emergent JCC and Deep Water Programs. [SC 21 is DDX Program]

20 **June 1995 to August 1997 (26 months) – Operations Analyst and Site Survey Team Leader also Naval**  
21 **Operations Analyst and Joint Training Analyst, C4I System for National Defense Operations Center and**  
22 **Area Command Centers Definition Study - completed August 1997.**

23 Performed pre-contract planning analysis for site survey from battalion to national level.

24 Managed budget for 3 months deployment for the 12 engineers in Saudi Arabia.

25 Conducted interviews and briefs with members of all joint Minister of Defense and Aviation (MODA) staff and  
26 all armed forces, including schools and topographic commands.

27 Provided reports, program reviews and TGMIRs for survey and design efforts for the 2 years, including the  
28 coordination of all Action Items and Program Management Review Minutes.

29 Created significant inputs to the *System Description Document, System Specification* as Lead Systems  
30 Engineer, emphasized operational concepts including staffing and workstation operator tasks; operations  
31 center and support facility layouts; specifications for a transportable operations center (TOC); system-level  
32 communications interfaces including ATM, SATCOM, PTT and RF communications; system hardware and  
33 software interfaces including JMCIS, TADIL-S and IDL; operator training; selected over 100 formatted  
34 messages (using USMTF) for integration, and overall system performance characteristics.

35 Drafted System Specification for Land Forces Operations Center, deemed excellent by customer.

Prepared *Site Survey Report* and participated in drafting the *Communications Interface Requirements*  
*Document*, presented multiple customer briefs.

Only engineer to start and complete this contract (over \$10M), most of the others were replaced.

The MODA C4I System will provide 13 operations centers, nation-wide, to form a joint service, C4I system,  
integrating the four services through 3 command echelons and, for the Land Force will provide their digital  
command and control system through 4 echelons.

27 **1995 (two weeks) – Systems Engineer, for an AirHawk Concept of Operations.**

28 Drafted a preliminary “*Operations Concept Document (OCD) for the Air HAWK*” system for HMSC, provided a  
29 systems approach to integrate the subsystems with the missile, for the Command and Control Division, using  
30 the MIL-STD-498 DID as a guide.

AirHawk provided an air-launch system capability for the U.K. Tomahawk cruise missile.

31 **1995 (five months) - Lead Systems Requirements Engineer, Warfighters' Simulation 2000 (WARSIM**  
32 **2000), US Army training system.**

33 Performed system functional requirements analysis for command and control levels from battalion through  
34 echelons above corps and Theater-levels

35 Responsible Engineer for the analysis and writing of the system specification for the entire system in  
accordance with MIL-STD-498 (System Engineering). (Hughes won Phase I)

WARSIM 2000 C4I training system will stimulate all present and emerging Force XXI digital C4I systems with  
operational data for entire staffs in their Tactical Operations Centers in the field, in classrooms and at the

1 War Colleges. WARSIM 2000 integrates with other joint systems through protocol standardization and  
2 object-oriented design features.

3 **1994 (two months) – System Requirements Compliance Engineer, Theater Battle Management Core  
4 System (TBMCS), US Air Force C4I system.**

5 Ensured compliance with the contract and requirements documents integrating different systems into the TBMCS  
6 proposal, including the Global Command and Control System.

7 Drafted a compliance matrix with 200 pages in the Executive Volume to meet demanding RFP compliance  
8 requirements (Proposal vs. IFPP vs. SOW vs. CDRL vs. WBS vs. CLIN vs TRD).

9 TBMCS is the US Air Force theater to squadron level C4I system. (Hughes lost)

10 **1994 (seven months) – Proposal Technical Volume Manager for the Vessel Tracking Services 2000 (VTS  
11 2000), US Coast Guard C3 system.**

12 Led the technical and engineering proposal efforts to comply with the RFP and proposal requirements, based on  
13 Hughes themes and proposal strategy decisions.

14 Managed systems, hardware, communications, software, and logistics engineers writing the responsive  
15 proposal. (Ten corporate teams bid; Hughes won Phase I with two others including Raytheon, Hughes  
16 performed Phase I, Congress delayed Phase II, and program was later restructured)

17 VTS interfaces radar, visual surveillance, environmental, and voice communications data with differential Global  
18 Positioning System (dGPS) information from automated and human input to enhance safety and  
19 commerce on waterways and for major port regions.

20 **1993-1994 (ten months) – Lead Systems Engineer, Fire Support Combined Arms Tactical Trainer  
21 (FSCATT), US Army training system.**

22 Team Leader for the requirements analysis, design, system engineering and proposal efforts.

23 Drafted and led several pre-RFP System Requirements Reviews for the System Specification.

24 Developed a technique with Distributed Interactive Simulation (DIS) protocols whereby a thousand or more  
25 cannons can perform exercises from multiple sites in same exercise.

26 FSCATT integrates artillery and fire control with a Forward Observer visual training system, provides Fire  
27 Direction Center simulation and stimulation interfaces with Close Combat Team Trainer (CCTT) M1 tank  
28 and M2 systems. (Hughes won \$118M program)

29 **1990-1991 (20 months) – Systems Requirements Engineer, Tactical Combat Training System (TCTS), US  
30 Navy C4I training system.**

31 Led the simulation and modeling, system requirements analysis for all real-time operations for the proposal and  
32 Phase I development efforts. (Hughes won Phase I)

33 Wrote most of the *Exercise Execution CSCI SRS* for real-time system execution software for all simulations  
34 and sensor, weapons and platform models (over 100).

35 TCTS provides a task group training data link for 100 aircraft, 24 ships and submarines, 6 ashore installations  
and ranges, with real-time targets (to 780). TCTS uses participant "pods" with a data link 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 (1 month) - 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. (Hughes won)

**1988-1991 (4 years) – Assistant Program Manager for the Training Effectiveness Subsystem, Device  
20A66.**

Created Performance Measurement Subsystem, used subcontractor to provide analysis, documentation, and  
design details.

Managed subcontract (\$1.2M), conducted subcontractor 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.

1 **1988-1991 (4 years) – Senior Systems Engineer, Device 20A66.**

2 Lead Systems Engineer, provided significant inputs for models, simulations, communication data link interfaces,  
3 user displays, and I/O; consultant to software team as ASW expert.

4 Designed to real-time Links 4A/11/16 with ships in port and ships/aircraft at sea.

5 The Device 20A66 trains a Battle Group Commander in a Task Force Command Center (TFCC), staff and  
6 subordinate staffs (in 20 ships and submarines and 15 aircraft in 35 mockups using 186 different  
7 workstations with 61 large screen displays) to use data links, communications, and good decision making  
8 practices.

9 **1986-1988 (1.5 years) – Proposal Technical Volume Manager, Device 20A66.**

10 Evaluated Draft-RFP and System Specification, provided 229 change pages, was acknowledged to be most  
11 significant pre-proposal action by any bidding contractor.

12 Led pre-proposal, technical design and development effort as the only engineer for 1 year.

13 Led, as Technical Volume Manager, team of systems, simulation, hardware, courseware, facility, logistics and  
14 software engineers in the synthesis and drafting of the 500-page technical volume, with final technical  
15 volume cost less than B&P estimate.

16 After proposal submittal, replied to questions, gave briefs. (Hughes won, beat 2 incumbents)

17 **1987-1988 (6 months) – Proposal Manager, Law Enforcement Driver Trainer System for California.**

18 Led pre-proposal and proposal team to develop a design for high-technology driver trainer systems for the Peace  
19 Officers and Safety Training (POST) Commission. (Hughes won)

20 Participated during contract, as systems engineer in-charge of design, to verify that the POST training  
21 objective(s), standard(s) and criteria would be met for the drivers of the system.

22 **1987 (4 months) – Lead Engineer, Advanced Fuels Auxiliaries Test System (AFATS) for US Air Force**

23 Provided initial engineering requirements analysis leading to joint venture with Allison Gas Turbines to bid this  
24 major USAF test system.

25 Drafted initial System/Subsystem Design Document (SSDD) as the basis for design.

26 Hughes bid, after I left project; however, USAF declined to award contract.

27 **1986-1987 (3 months) – Proposal Coordinator, USAF LANTIRN training system.**

28 Led proposal compliance review for real-time video and infrared technical requirements using the Hughes  
29 RealScene™ 3-dimensional (voxel-based), interactive system instead of the Hughes (formerly Honeywell)-  
30 developed, GBU-15 training system.

31 LANTIRN trainer provides real-time displays of video and IR images to cockpit and weapons systems for F-15,  
32 F-16 flight simulators and the AGM-130 missile. (Hughes no-bid)

33 **1985-1986 (9 months) – Senior System Engineer for the Electronic Warfare Coordination Module (EWCM)  
34 program with responsibility for the environmental effects design.**

35 Led technical proposal effort, coordinated proposal outline, reviewed storyboards and topics, determined  
36 compliance, edited technical volume, and synchronized with other volumes.

37 Responsible engineer for atmospheric and acoustic effects on propagation and degradation from  
38 countermeasures, provided customer briefs and proposal topics.

39 EWCM provides full spectrum management capabilities for the Electronic Warfare Commander to coordinate  
40 operational and intelligence EW information and databases. (Hughes won Phase I, lost Phase II)

41 **1982-1985 (2.5 years) – Systems Engineer for the training subsystem, Device 14A12 ASW Tactical Ship  
42 Training System.**

43 Led technical proposal effort for the Performance Measurement and Monitoring training subsystem, sonar  
44 modeling and simulation, operator displays, fire control, data links, and sensor, weapon and platform  
45 modeling.

46 Designed PMM subsystem, pushing the state of the art, later implemented in Device 20A66.

47 All ASW ships and ASW aircraft were simulated in a single-ship, multi-dimensional (anti-air, anti-surface, anti-  
48 submarine) environment, as a C2 and sensor operator training system.

49 **PAPERS**

50 Presented two papers to the Industry/Inter-Service Training Systems Conferences (I/ITSC):

51 "Design Concepts for a Performance Measurement System" [nominated for best paper, in top 5 of 105]

1 "A Performance Measurement System Design", based on Device 20A66 results.  
2 Prepared and presented three reports to the National Security Industrial Association (NSIA), ASW Committee, as  
3 Vice-Chairman of Training and Interoperability Subcommittee; Study Leader for following Reports:  
4 "Training Commonality for Oceanography and Acoustic Environment Study Results"  
5 "Training Commonality for Detection and Classification Study Results"  
6 "Proposed Standard Sonar Equation for Technical, Tactical, and Training Communities"  
7 Received NSIA Meritorious Award for leading these ASW industry and government studies)  
8 Presented paper to the Hughes Advanced Technology and Studies Group describing the use of "Distributed  
9 Interactive Simulation (DIS) Protocols in C4I Systems".

#### 7 RAYTHEON AND HUGHES COURSES

8 **Taught** "Introduction to ASW Tactics" course, at Hughes (four times) and for the *Advanced Training Institute* at  
9 Naval Underwater Systems Center (New London and Newport RI) 10 times at the Naval Surface Weapons  
10 Center (White Oak), Naval Civil Engineering R&D Center (Oxnard), and other locations.

11 **Attended** "C4I Architecture Implementation" (4 days, AFCEA Course 503), "Risk Management" (3 days), "Front-  
12 End of the Business" (1 week), "Systems Engineering" (HITS/HMSC processes), "Global Command and  
13 Control Seminars" (APL)

#### 11 **Attended Advanced Technical Education Program (ATRP) Courses:**

12 Software Risk Analysis, Software Estimating and Prediction, Database Modeling, Object-Oriented  
13 Software Methodologies, Proposal Development, How to Interview Candidates, Microsoft Word, Creating a  
14 Web Browser, Netscape User's Courses

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

#### 15 MILITARY SCHOOLS

16 Attended US Naval schools including Destroyer School Department Head Course, Gunnery Officer, Anti-  
17 submarine Warfare (ASW) Officer, Communications Security (COMSEC), Naval War College Wargaming  
18 Course, and Naval Tactical Data Systems User Courses.

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

#### 20 SIGNIFICANT MILITARY AND OPERATIONAL C4I EXPERIENCE

21 Active duty commissioned officer in the US Navy serving in the following assignments (home ported twice with  
22 each of the four fleets):

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

27 Fleet ASW Training Center, Pacific Fleet, the lead Coordinated ASW Tactics Instructor and Staff  
28 Oceanographer, and at sea as an Anti-Submarine Warfare Commander (ASWC) Instructor or ASWC Watch  
29 Officer during Fleet Exercises, augmenting Destroyer Squadron staffs. Also taught coordinated ASW tactics  
30 at Fleet Combat Training Center (Point Loma) as a guest instructor to TAO classes for three years.

31 Commander Carrier Group Three, as staff ASW Surface Operations and Geophysics/ Environment Officer,  
32 deployed twice to Western Pacific and Indian Ocean; planned and conducted RIMPAC 77 with Japan,  
33 Australia, New Zealand, and Canadian ships, 3 aircraft carriers, 7 submarines and over 150 aircraft; planned  
34 Persian Gulf CENTO MIDLINK-77 with UK, Iran and Pakistan; qualified as Battle Force TAO on 5 different  
35 aircraft carriers.

36 Naval Surface Warfare Officers Schools Command/Naval Destroyer School as the ASW Tactics and TAO  
37 Instructor for Prospective COs, XO's, Department Heads and Free World Navies Courses for mid-grade  
38 officers from over 30 countries; co-developed Naval Tactical Analysis Wargame (NAVTAG) and used it to  
39 evaluate tactical concepts including Harpoon anti-ship tactical development; used ASW team and sonar  
40 trainers for exercises; trainers for anti-PT boat interactive team exercises; taught anti-submarine/anti-surface  
41 warfare tactics, EW, communications, and EMCON decision making classes. Taught surface ship ASW at  
42 Submarine School, was a guest instructor at the Naval War College and used the War College wargaming  
43 facilities to evaluate new systems and ship classes being designed by NAVSEA. (Awarded Navy  
44 Commendation Medal with Gold Star)

45 Commander Cruiser-Destroyer Flotilla Ten, as ASW Plans Officer, deployed to Sixth Fleet, embarked on 3  
46 aircraft carriers and 2 cruisers including USS *Albany*. Planned and executed many Sixth Fleet and NATO

1 exercises and a CENTO air defense exercise. Engaged in more than 50 Soviet bomber over-flights of the  
2 Battle Group, 100% successfully intercepted by fighters and missile lock –on prior to 100 miles from the  
3 aircraft carrier. (Awarded Meritorious Unit Commendation for validating new anti-SSBN tactics and  
4 developing SSN direct support procedures)

5 USS *Hollister* (DD788), Operations Officer, deployed for 2 years, 19 months of consecutive combat operations  
6 off Vietnam in the Seventh Fleet, provided naval gunfire support (over 28,000 rounds), maritime surveillance,  
7 SAR, Gemini VIII NASA space craft rescue ship, and EW intelligence gathering and Korean operations.  
8 (Awarded Secretary of Navy Unit Commendation, Navy Commendation Medal with Combat "V")

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

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

#### 14 AWARDS

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

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

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

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

#### 27 SECURITY CLEARANCE

28 Secret (have held higher), last updated 1998 is being maintained by ISIS, Inc.

1 **Appendix B – Exhibits**

2  
3 **Exhibit MM-1**

4 **Comments on the Proposed Rate Increase**  
5 **for Arizona-American Water Company, Tubac on 18 November 2003.**  
6

7 **Marshall Magruder**  
8 **PO Box 1267**  
9 **Tubac, AZ 85646**

10 **18 November 2003**

11  
12 **BEFORE THE ARIZONA CORPORATION COMMISSION**

13 For the Open Meeting held this date in Tubac Arizona

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

15 **FIRST ISSUE – UTILITY RATE INCREASES, WHY?**

16  
17 American businesses are **leaders in developing efficient work processes** to lower costs and  
18 dominate that business environment.

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

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

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

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

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

35 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

1 goes for **"self-improvement" mechanisms**, embedded into the day-to-day operations, to foster  
2 overall corporate improvement. It is obvious by just the "cross the board" approach in this case, that  
3 ISO 9000 has not been implemented at Arizona-American Water Company.

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

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

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

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

#### 15 **SECOND ISSUE – IMPACTS OF THIS UTILITY RATE INCREASE**

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

17	Natural Gas rate increase	20.9%
18	Electricity rate increase	22.0%
19	MEDICARE	13.9%
20	Trash charge per car load	100%
21	Proposed Water rate increase	<b>86% to possibly 35%</b>

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

23	<b>Social Security COLA</b>	<b>2.1%</b>
----	-----------------------------	-------------

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

25  
26 **"ENOUGH IS ENOUGH"**

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

29  
30 Sincerely,

31  
32 Marshall Magruder  
33 (520)398-8587  
34 [marshall@magruder.org](mailto:marshall@magruder.org)  
35

**Exhibit MM-2**

**Rate Comparisons at Various Volume Levels: America-Arizona Water versus Aliso Springs Property Owners Association**

An adjacent smaller private water company with about 30 customers has a rate structure that emphasizes conservation as follows:

<u>Monthly Usage</u>	<u>Rate</u>
First 4,000 gallons	\$4.00 per 1,000 gallons
4,001 to 15,000 gallons	\$10.00 per 1,000 gallons
Above 15,001 gallons	\$20.00 per 1000 gallons
 Monthly Service Charge	 \$20.00 per customer

Table 1 below compares the Volume Charges for the Present and Proposed Tubac Water District AAWC and the Aliso Springs Property Owners Association (ASPOA) rates.

**Table 1 – Rate Comparison of Monthly ¾-inch Residential Rates at Various Volume Levels for AAWC-Tubac Water District and ASPOA, Basic Service Charge and Arsenic Cost Recovery Surcharges (ACRS)**

Monthly Water Usage	AAWC-Tubac Water District		ASPOA
	Present	Proposed	
5,000 gallons	\$10.41	\$19.97	\$20.00
10,000 gallons	\$24.66	\$44.22	\$64.00
15,000 gallons	\$38.91	\$68.47	\$114.00
20,000 gallons	\$53.16	\$92.72	\$214.00
<b>Service Charge</b>			
Basic Service	\$19.68	\$32.50	\$20.00
<b>Arsenic Cost Recovery Surcharge (ACRS)</b>			
Basic ACRS Charge	\$0.00	\$25.98/month	\$0.00
Volumetric ACRS Charge	\$0.00	\$3.14/1000 gallons	\$0.00

Table 2 below shows total monthly bills for water usage including Basic Charge, Volumetric usage and both ACRS charges (basic and Volumetric).

**Table 2 – Total Monthly Bill Comparisons between ¾-inch Residential Rates for AAWC Water District and ASPOA**

Monthly Water Usage	AAWC-Tubac Water District		ASPOA
	Present	Proposed	
5,000 gallons	\$30.09	\$94.15	\$40.00
10,000 gallons	\$44.34	\$134.10	\$104.00
15,000 gallons	\$58.59	\$174.05	\$134.00
20,000 gallons	\$72.84	\$214.00	\$234.00

1 **Exhibit MM-3**

2 **The 2005 Santa Cruz County Comprehensive Plan - Water Resources Element**

3 Below are pages 62 to 65 from the *2005 Santa Cruz County Comprehensive Plan*.

4

---

5 **Water Resources Element**

6 ***Introduction***

7  
8 Sufficient water supplies, along with effective and efficient water management and conservation  
9 programs, are crucial for all communities. To assist in long-term water planning, A.R.S. §11-821(C)  
10 allows for an optional Water Resources element to be included in the County Comprehensive Plan.  
11 This element is not required for counties under 125,000 in population but was included in this Plan due  
12 to the critical importance of water in relation to growth potential in Santa Cruz County. The Water  
13 Resource element summarizes currently available water supplies; current and future water demands  
14 and the general impacts of future growth on water availability. This element does not include new  
15 independent hydrogeologic studies. It does include recommendations for water management and  
16 conservation.

17 ***Past, Present and Future Trends***

18 The existing condition of water resources (e.g., rivers, streams, wetlands, etc.) provides base line data  
19 used to determine if future population growth will exceed water availability for the unincorporated  
20 County area and what regulations apply to manage that growth. The Arizona Department of Water  
21 Resources (ADWR) under two major programs regulates water resources in Santa Cruz County. The  
22 first and most complete authority, the Assured Water Supply Program was granted to ADWR in 1994 by  
23 creation of the Santa Cruz County Active Management Area (SCAMA). Maintaining a safe-yield  
24 condition and preventing long-term declines in local water tables are the management goals of the  
25 SCAMA (A.R.S. §45-562(C)). The geographic area of the SCAMA is about 716 square miles in the  
26 Upper Santa Cruz Valley River Basin. It is concentrated around a 45-mile long reach of the Santa Cruz  
27 River extending from the Mexican border to a few miles north of the Santa Cruz County/Pima County  
28 border (see Figure 6 in Appendix V). Detailed information regarding water resource conditions, water  
29 use characteristics, regulatory programs, future conditions and recommendations regarding future water  
30 management strategies are contained in "The Third Management Plan for the Santa Cruz Active  
31 Management Area" adopted on December 13, 1999. Any future residential subdivision development  
32 within this region must occur under the SCAMA regulations and, therefore, it is an important planning  
33 issue.

34 For the remainder of the County outside of the SCAMA, ADWR authority is primarily focused through the  
35 Water Adequacy Program, described in A.R.S. §45-108. This program requires developers to obtain a  
determination from the state regarding the availability of water supplies prior to marketing lots. For new  
subdivisions outside of the SCAMA, a determination of water adequacy by ADWR is required before the  
County can approve a plat. This can often be a determination that there is not adequate water for the  
development, but such a ruling does not preclude lot sales.

36 ***Groundwater***

37 Water consumption, both domestic and commercial, within Santa Cruz County consists solely of  
38 groundwater extraction. The Santa Cruz River basin is the largest groundwater recharge facility for  
39 areas west of Patagonia Lake and feeds such populated areas as Nogales, Rio Rico, and Tubac. The  
40 O'Donnell Canyon and Sonoita and Turkey Creek basins are used by the populated regions of Sonoita  
41 and Elgin. The Patagonia region is served solely by the Sonoita Creek basin.

42 The Santa Cruz River basin has an average annual groundwater production range of 51,500 to 55,300  
43 acre-feet. This range was concluded by a study performed in 1997 by ADWR. The largest demand for

1 groundwater in this region is riparian with an estimated annual consumption of 25,800 acre-feet. Other  
2 additional demands consist of municipal, agricultural and industrial. This region is regulated through the  
3 SCAMA management plan, as administered by ADWR, which requires the development of legislative  
4 and policy guidelines and educational programs relating to water resource use and conservation.

5 Municipal water demand within the Santa Cruz River basin, is provided mainly by four large providers:  
6 City of Nogales, Rio Rico Utilities, Valle Verde Water Company and Arizona American Water Company  
7 (formerly Citizens Utilities). Total water demand by these providers is approximately 7,043 acre-feet  
8 based on 1997 data. Smaller providers account for an additional demand of 400 acre-feet.

9 Industrial water demand is met by individual user wells and permitted annual volumetric allotments  
10 based on industrial classification and use. The Santa Cruz AMA requires additional conservation  
11 practices above general conservation requirements. These additionally regulated uses are:

- 12 • Turf-related Facilities ( $\geq 10$  acres)
- 13 • Sand and Gravel Facilities ( $> 100$  acre-feet per year)
- 14 • New Large Landscape Users (10,000 square feet)
- 15 • New Large Industrial Users ( $> 100$  acre-feet per year)

16 Industrial water demand fluctuates depending mostly on weather conditions. During 1997 industrial  
17 water demand was estimated at approximately 1,300 acre-feet.

18 Riparian uses currently make up the largest sector of demand. This demand consists of water  
19 consumed by dense vegetative tracts along the Santa Cruz River's effluent-dominated perennial  
20 reaches. Such tracts have increased in size overall from 6,200 acres in 1954 to 8,600 acres in 1995  
21 based on preliminary estimates.

22 Agricultural demand within the SCAMA consists largely of irrigated croplands provided through  
23 Certificates of Irrigation Grandfathered Rights (IGRs) issued to farmers in the early 1980's. The  
24 estimated demand during 1997 for IGR was approximately 12,500 acre-feet, the second largest water  
25 demand sector after riparian use.

26 The Sonoita and Elgin area domestic water is supplied largely by shared-use and individual user wells.  
27 The Patagonia area industrial and most municipal water demand is provided by the Town of Patagonia.  
28 Estimates of agricultural and riparian water demand cannot be established for these regions due to  
29 insufficient data, however agricultural demands are provided solely by individual user wells.

### 30 **Reclaimed Water**

31 Currently, no direct reuse of wastewater treatment plant effluent has occurred to any significant degree.

32 Effluent from the Nogales International Wastewater Treatment Plant (NIWWTP), which serves the City,  
33 a portion of the most densely populated areas of Rio Rico, Peña Blanca Highlands and part of Kino  
34 Springs (Estancia Yerba Buena), is a major source of supply contributing to the maintenance of water  
35 levels downstream of the plant.

A community wastewater treatment facility is located in Patagonia. The Tubac Golf Resort (TGR) and  
Barrio de Tubac developments both have centralized wastewater systems and utilize wetlands for  
treatment. TGR reuses some of its effluent to irrigate the golf course. All other unincorporated regions  
are served via onsite systems (e.g., septic systems).

### 36 **Other Water Supplies**

Other known water supplies included allocations of the Central Arizona Project (CAP) water to Rio Rico  
and the City of Nogales. However, the cost of delivery facilities was prohibitive. Those allocations were  
transferred to the City of Scottsdale and are no longer available.

1 The City of Nogales may use up to 4,200 acre-feet of surface water from Patagonia Lake, although only  
2 for emergency use. Again, due to the anticipated cost to delivery this water, the city does not use this  
3 source.

4 Peña Blanca Lake is not a viable source given recent contamination issues and the fact that the United  
5 States Forest Service and the Arizona Game and Fish Department own surface water rights.

6 Currently, within the SCAMA it is estimated by ADWR that municipal, agricultural and industrial demand  
7 for water is about 18,800 acre-feet annually. Using a population estimate of 30,000 living within the  
8 SCAMA yields a consumption rate of approximately 0.63 acre-feet per year per person. Current inflow  
9 to the SCAMA is estimated by ADWR to be between 39,600 and 142,900 acre-feet per year. Utilizing a  
10 conservative inflow rate of 45,000 acre- feet per year and a consumption rate of 0.63 acre-feet per year  
11 results in a population estimate of approximately 71,000 persons in the SCAMA before safe-yield is  
12 jeopardized.

13 There is less data available for review outside of the SCAMA. In "A Comprehensive Plan for Northeast  
14 Santa Cruz County" (CPNSCC) (2002, Sonoita Crossroads Community Forum), a summary of certain  
15 available hydrogeologic reports was accomplished to evaluate water supply. The summary concluded  
16 that a multi-agency groundwater study should be completed in order to more accurately determine  
17 future availability of water supply. Based on review of the CPNSCC and other limited information it is  
18 believed that sufficient water supply exists for near-term needs outside of the SCAMA. Adoption of the  
19 land use recommendations contained within this Comprehensive Plan and implementation of water  
20 resources policies in conjunction with conducting a detailed water resources evaluation for the area  
21 outside of the SCAMA will ensure adequate water supply for the Comprehensive Plan 10-year window.

## 22 **WATER RESOURCES ELEMENT GOALS, OBJECTIVES AND POLICIES**

### 23 **GOAL 17: OUR AIR AND WATER ARE CLEAN AND MEET OR EXCEED ALL NATIONAL 24 STANDARDS.**

25 *With the advent of the Clean Water Act, Clean Air Act and Safe Drinking Water Act years ago, state  
26 and federal agencies were given the tools to begin to clean up our air and water. However, our location  
27 adjacent to areas outside County jurisdiction makes achieving national air and water quality standards  
28 difficult. Appropriate land use decisions and sound development standards are important to ensure that  
29 the PM<sub>10</sub> and aquifer and surface water quality standards exceedances that exist are not aggravated.  
30 Close cooperation with state, federal and international agencies will also move the County toward  
31 meeting this goal.*

32 *Objective 17.1 Prevent the expansion of the Nogales Non-attainment Area (NNA).*

33 *Policy 17.1.1 The County will develop ordinances requiring the use of appropriate dust control methods  
34 for clearing land for new development, roads, and other projects.*

35 *Policy 17.1.2 The County will develop a mitigation plan that addresses dust pollution.*

### 36 **Objective 17.2 Encourage proper treatment and disposal of wastewater.**

37 *Policy 17.2.1 The County will restrict conventional septic systems in accordance with state law and  
38 regulation.*

39 *Policy 17.2.2 The County will provide information to communities on methods to fund sewer systems  
40 (sanitary and improvement districts, Water Infrastructure Finance Authority, USDA Rural Development  
41 Agency, etc.)*

### 42 **Objective 17.3 Reduce stormwater runoff pollution.**

43 *Policy 17.3.1 The County will ensure that new developments comply with the Arizona Pollutant  
44 Discharge Elimination System permitting requirements.*

1  
2 **GOAL 19: WATER SUPPLIES ARE PROTECTED AND CONSERVED.**

3 *Water availability is key to our future. Because the County is susceptible to droughts, conservation and*  
4 *management of water are of major importance. In its review of new development as it applies land use*  
5 *regulations under its jurisdiction, the County can complement existing state and federal water*  
6 *management regulations administered by the Arizona Department of Water Resources (ADWR) and*  
7 *other authorities, both inside the Santa Cruz Active Management Area (SCAMA) and outside of the*  
8 *SCAMA. Within the SCAMA, the Santa Cruz River constitutes a renewable and variable source in*  
9 *addition to other water supplies. Outside the SCAMA, this source is unavailable and certain parts of the*  
10 *County are believed to be more vulnerable to drought and other challenges for reconciling water supply*  
11 *with increased demand.*

12 **Objective 19.1 Review and encourage that conservation measures, reuse alternatives and**  
13 **drought management practices be planned and implemented for all new land developments.**

14 *Policy 19.1.1 The County will adopt the Wellhead Protection Program.*

15 *Policy 19.1.2 The County will encourage and facilitate gray water reuse.*

16 *Policy 19.1.3 The County in coordination with ADWR will assess the water demand that will result from*  
17 *proposed new development added to the existing uses and how this will be served by identified water*  
18 *supplies.*

19 **Objective 19.2 Encourage planned residential subdivision development to reduce wildcat**  
20 **subdivisions that involve lot splitting and proliferation of exempt wells.**

21 *Policy 19.2.1 The County will consider alternatives to denial of a rezoning application, when adverse*  
22 *water consequences may result.*

23 *Policy 19.2.2 The County will work in association with other counties to develop legislation designed to*  
24 *inhibit the growth of wildcat subdivisions by providing reasonable and attainable alternatives for land*  
25 *development.*

26 **Objective 19.3 Outside the SCAMA, develop watershed management plans that are consistent**  
27 **with existing state law.**

28 *Policy 19.3.1 The County will encourage the formation of Rural Watershed Associations that would*  
29 *work with ADWR to implement programs of water conservation and voluntary management of water*  
30 *resources.*

31 **Objective 19.4 Outside the SCAMA, ensure that residential developers are in compliance with**  
32 **ADWR's Water Adequacy Program.**

33 *Policy 19.4.1 The County will require evidence of compliance with the Water Adequacy Program prior*  
34 *to final plat approval.*

35 **Objective 19.5 In concert with ADWR, scrutinize commercial and industrial development in view**  
**of available water resources to be supplied by an Industrial Use Permit, and encourage**  
**conservation, reuse and recharge of such water resources.**

*Policy 19.5.1 The County will require applicants for new commercial and industrial land uses that are*  
*to be supplied through an Industrial Use Permit to demonstrate, as a condition of approval, that ADWR*  
*has approved the requested water use as consistent with the management goals of the SCAMA.*

1 **Exhibit MM-4**

2 **AAWC Response to Magruder Data Request 1-5**

3  
4  
5 **COMPANY:** ARIZONA-AMERICAN WATER COMPANY  
6 **DOCKET:** W-01303A-08-0227 and SW-01303A-08-0227

7 **Response provided by:** Joseph Gross  
8 **Title:** Director of Engineering

9 **Address:** 19820 N. 7<sup>th</sup> Street, Suite 201  
10 Phoenix, AZ 85024

11 **Company Response Number:** MM 1-5

12  
13 **Q:** Mr. Broderick's revised Testimony of 20 July 2008, on page 25 stated that "a  
14 developer will contribute approximately \$1 million toward the facility".

- 15 a. Has an agreement been signed with this developer? If an agreement has not  
16 been finalized, then what is the present status of this agreement and will it be  
17 finalized prior to the hearing in this case?
- 18 b. Why is "approximately" used instead of an exact value?
- 19 c. Please provide a copy of this agreement.

20  
21 **A:** a. No, an agreement has not been signed with the developer. Arizona-American  
22 and the developer continue to work together to plan, design, and build common water  
23 facilities with the purpose of satisfying Arizona-American's arsenic treatment  
24 requirements and the developer's fire flow pumping and water storage requirements  
25 for the development. Currently, the developer is nearing completion of a water  
26 master plan and cost analysis to evaluate their various alternatives to provide the  
27 required pumping and water storage. Once an alternative is chosen, an agreement  
28 will be pursued between parties.

29 b. "Approximately" is used because at this time the pumping and water storage  
30 facilities required to be built by the developer are only estimated in their size, scope,  
31 and construction cost.

32 c. No agreement exists at this time, and one may not be finalized by the time of  
33 the hearing.

2 AAWC Response to Magruder Data Request 1-13

3  
4  
5 **COMPANY:** ARIZONA-AMERICAN WATER COMPANY  
6 **DOCKET:** W-01303A-08-0227 and SW-01303A-08-0227

7  
8 **Response provided by:** Thomas M. Broderick  
9 **Title:** Director, Rates and Regulation

10 **Address:** 19820 N. 7<sup>th</sup> Street, Suite 201  
11 Phoenix, AZ 85024

12 **Company Response Number:** MM 1-13

13  
14 **Q:** Mr. Broderick's Exhibit TMB-3, on page 1, shows a rate case expense of \$10,000  
15 titled "Witness Training".

- 16 a. Please provide the name of the organization that will train these witnesses?  
17 b. What are the training goals for this training?  
18 c. Which witnesses are planned or have already participated in this training?  
19 d. When will this training occur and where?  
20 e. How does AAWC justify ratepayers funding "witness training" expenses?

- 21  
22 **A:** a. The organization has not yet been selected.  
23 b. To enable a Company employee to understand the basics of testifying before  
24 the ACC.  
25 c. No training to-date has occurred. The pool of trainees would be from  
26 Company employees that have submitted either direct, rebuttal or rejoinder  
27 testimony.  
28 d. No date has been scheduled. The training would most likely occur in Phoenix  
29 just prior to the hearing.  
30 e. Since witnesses are trained to answer questions accurately, truthfully, and  
31 concisely, this is of benefit to ratepayers who ultimately pay the costs for  
32 Company attorney(s), transcripts, briefs and, perhaps, their own attorney(s) if  
33 they are part of an intervention.  
34  
35