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7 **BEFORE THE ARIZONA CORPORATION COMMISSION**

8 **IN THE MATTER OF THE APPLICATION**  
9 **OF PINE WATER COMPANY FOR A**  
10 **DETERMINATION OF THE CURRENT**  
11 **FAIR VALUE OF ITS UTILITY PLANT AND**  
12 **PROPERTY, A RATE INCREASE AND FOR**  
13 **APPROVAL TO INCUR LONG-TERM DEBT.**

DOCKET NO. W-03512A-03-0279  
SURREBUTTAL TESTIMONY OF HARRY  
JONES

14  
15 COMES NOW THE PINE STRAWBERRY WATER IMPROVEMENT DISTRICT and files its  
16 surrebuttal testimony of Harry Jones.

17 Respectfully submitted this 20<sup>th</sup> day of January, 2004.

18 LAW OFFICE OF JOHN G. GLIEGE

19  
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21  
22 John G. Gliege

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24  
25 Original and thirteen copies of the foregoing  
26 sent this 20th day of January, 2004 to:

27 Docket Control Center  
28 Arizona Corporation Commission  
29 1200 W. Washington Street  
Phoenix, AZ 85007

Arizona Corporation Commission  
DOCKETED

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2 **Surrebuttal Testimony of Harry Jones**

3 **Mr. Bourassa' Testimony:**

4

5 It would be very helpful if all the changes suggested by the Pine Strawberry Water Improvement  
6 District { PSWID } and the Staff and accepted by Bourassa were consolidated into new schedules and a  
7 new application. In light of all the changes and corrections to the financial statements, I still stand by my  
8 earlier recommendation that the Commission should suspend the current Rate Application, delay the  
9 application process or dramatically minimize any increases until (1) accurate data is supplied on prior  
10 reports and with a new Rate Application, (2) conflicts of interest and lack of arms-length transactions are  
11 fully documented, explained, and eliminated, and (3) the Applicant establishes immediate plans and  
12 goals, and supplies meaningful financial resources, in an attempt to find more water to support the  
13 service demands and projected growth of the Certified Service Area.

14 In addition, the Commission Staff should audit all of the specific inter-company cost and revenue  
15 transactions between the two operating companies themselves, Pine Water Company {PWC} and  
16 Strawberry Water Co., and between the two operating companies and Brooke Utilities, the California  
17 based affiliate or parent of the Arizona operating companies. Because of common control of the  
18 subsidiaries and the existence of an unregulated parent company that does business out of state, there is a  
19 massive incentive to not disclose adequate details of transactions that could result in multiple mark-ups  
20 on water purchases, unjustified mark-ups between companies on wheeling costs, excessive unexplained  
21 outside service fees, and charges improperly posted or allocated to the wrong firms within the Brooke  
22 Utilities family of firms.

23 Also, the Commission should review its prior decisions and rate cases for these entities since  
24 some of those decisions were possibly made on the basis of less than arms-length relationships between  
25 the firms involved.

26 On page 4 -17, I certainly agree with the Staff that post test-year investments in equipment  
27 should not be allowed into the rate base. Typically, the rate base investment cutoff date and the  
28 operating expense period are matched to each other. There seems to be no logic for including post test-  
29 year plant investment expenses in the base other than it allows an unjustified advantage to the Applicant.

1 At Bourassa Rebuttal page 11 7-26 and p. 12 1-15, I agree with Staff's general treatment of  
2 Project Magnolia as being part of the Rate Base of PWCo, and also with the corrections to Staff's  
3 adjustments proposed by Mr. Bourassa to correct depreciation, adding equity, adding back the wheeling  
4 charges from inception through the end of the test-year, and including power, operations labor, payroll  
5 taxes, insurance, water treatment, and repairs and maintenance. Note: The total of these entire  
6 Magnolia related costs are \$34,000 per year per Interrogatory response #21 by Hardcastle and Bourassa.

7 In Bourassa, Rebuttal Page 14 11-26 and page 15-1, Mr. Bourassa continues to present  
8 misleading information related to what the words "transportation costs" mean. PWCo has continuously  
9 and improperly included costs of "wheeling" services for use of the Project Magnolia pipeline (as  
10 dictated by Brooke Utilities) in this account. On p. 120 of the *Uniform System of Accounts for Class B*  
11 *Water Utilities 1996*, published by the National Association of Regulatory Utility Commissioners for use  
12 by utilities with \$200,000 to \$999,999 in revenue, and the accounting system the Commission requires  
13 PWCo to use, defines transportation expenses, account #650 as "this account shall include all truck,  
14 automobile, construction equipment, and other vehicle expenses chargeable to utility operations, except  
15 depreciation and insurance". Clearly, wheeling charges do not belong in this account. Three lines above  
16 in the NARUC Chart of Accounts on p. 120 is the correct account # 636 that should be used for  
17 "wheeling" charge services provided on a contractual basis, which is defined as "Contractual Services-  
18 Other -This account shall include those operations costs contracted for which are not included in  
19 accounts 631, 632, 633, 634", which accounts deal with outside contract services for engineering,  
20 accounting, legal, management fees, and testing. This improper use of the required system of accounting  
21 is misleading and confusing and adds greatly to the mistrust of PWCo, such that the Staff and informed  
22 ratepayers frequently do not understand the situation as to whether this expense is truck and equipment  
23 expense (as it should be), costs of hauling water (as some readers thought), wheeling costs, or something  
24 else. Staff generally knows what "transportation" costs are, except when dealing with Pine Water. If  
25 PWCo had properly titled the wheeling charge as "Contractual Services-Other" and indicated their  
26 reported total of \$176,144 for the test-year (Bourassa Rebuttal page 30) that had only \$670,447 in  
27 revenue (wheeling equals 26.3% of sales) and \$267,780 in wheeling charges in 2001 against \$685,233 in  
28 sales (39.1% of the full year's sales against 11 months of operation of the pipeline), don't you think that  
29

1 expense would “stand out” and be more subject to question rather than burying these costs in with truck  
2 and equipment operating expenses.

3 At Bourassa Rebuttal. Page 16, Bourassa indicates, “the District has actually provided  
4 information supporting, at a minimum, the Company’s requested level of rate case expense”. Bourassa  
5 needs to explain how he arrived at that conclusion. In fact, the District highly objects to the level of rate  
6 case expenses, such expenses being unrealistically high due to the fact the Application is full of incorrect  
7 and misleading information that the Staff and Intervenors must ferret out. Blaming the high rate case  
8 expense on the fact the District has paid Mr. Jones and its attorney for efforts to see that a fair hearing  
9 occurs is preposterous. If the District’s concerns were frivolous, that would be fair, however the  
10 District’s case and the Staffs’ concerns are generally “on target”. The level of allowable rate case  
11 expense to include should be based on the average percent of sales the Commission typically allows  
12 utility firms similar in size to PWCo.

13 At Bourassa Rebuttal pages 17-18, Bourassa suggests adjusting property taxes for other than  
14 historical costs. The District supports the use of historical costs for the reasons Staff indicated and the  
15 fact the Applicant has consistently charged Strawberry Water Co. property taxes to Pine Water Co.  
16 (Bourassa Rebuttal pages. 21 lines 12-26 and. 22 lines 1-8 where he admits that \$14,550 in 2001 and  
17 \$16,700 in 2002 was “mistakenly” paid by PWCo.). In fact, the historical figures need to be adjusted to  
18 remove these overpayments from the historical figures prior to determining the real costs of property  
19 taxes in 2000, 2001, and 2002.

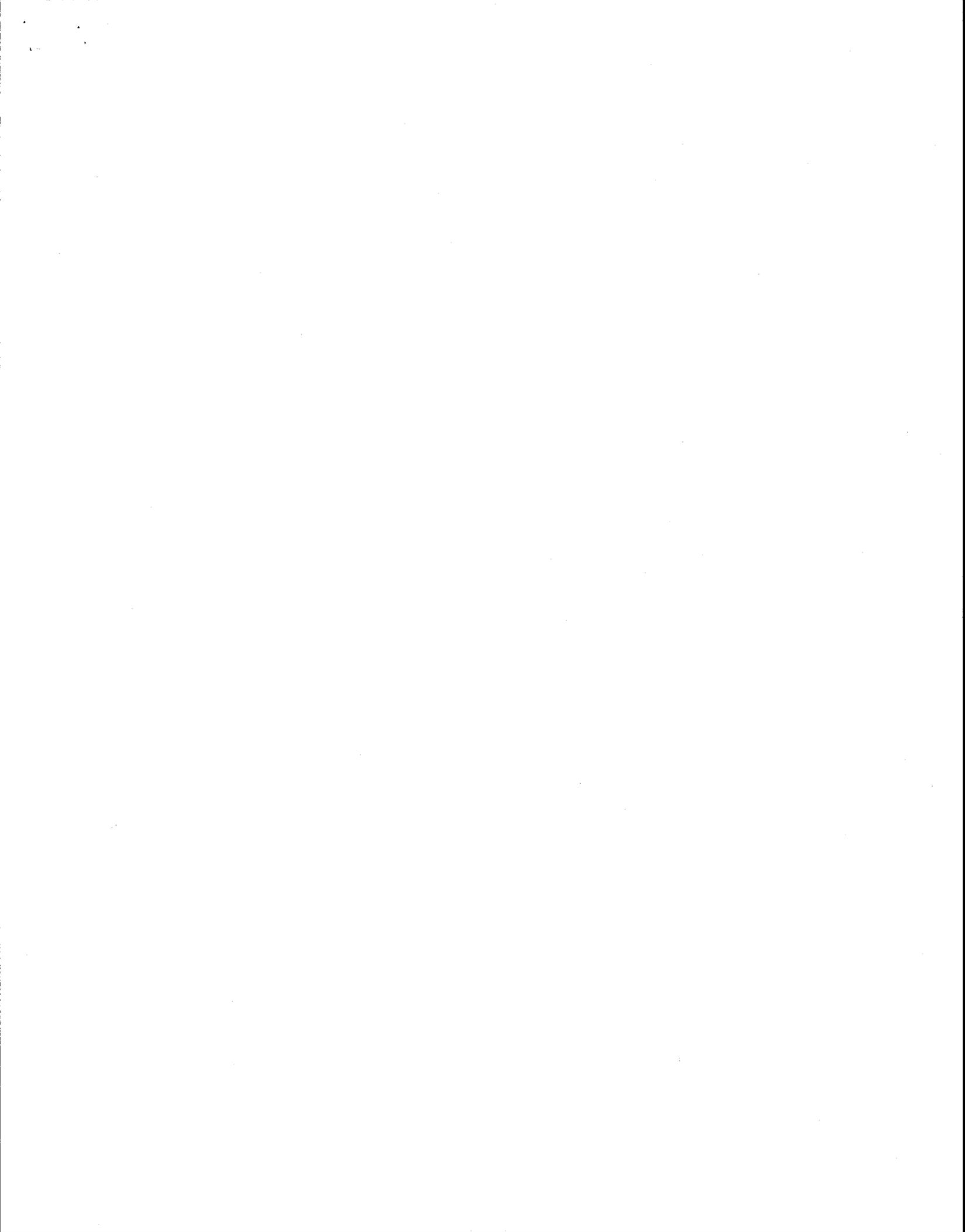
20 At. Bourassa Rebuttal page 20, he claims that the District has supplied no evidence in support of  
21 Mr. Jones’ testimony that “the Company has excluded critical information that influences cost and rates  
22 has been left out (sic), misstated or presented in a confusing manner”. The response of Bourassa at page  
23 20 lines 18-24 makes no sense at all in light of Hardcastle’s inclusion of answers by Harry Jones to  
24 Interrogatory 1.27 clearly documented in Hardcastle’s Rebuttal Exhibit 2. In fact, Mr. Bourassa has  
25 agreed with nearly every point Jones made in his testimony related to improper accounting for property  
26 taxes, repair and maintenance expenses, water hauling costs, costs of purchased water, legal fees, costs  
27 of outside services, wheeling costs, excessive miscellaneous expenses lumped together, and differences  
28 in financial statement amounts on the Application versus what was reported in Annual Reports to the  
29 Commission. A good example of clear admission of improper accounting is in the paragraph

1 immediately preceding related to property tax issues brought up by Mr. Jones. Misstatement of water  
2 hauling costs is admitted at Bourassa Rebuttal page 22 line 14-21. Bourassa at Rebuttal pages. 23- 27  
3 admits additional misstatements and misleading information.

4 Mr. Bourassa's explanation related to costs of purchased water at Rebuttal page 24 lines 4-16  
5 being lower than Mr. Jones' calculation is easily explained by the fact that PWCo stated in its 2002  
6 Annual Report (p. 9) that it purchased only 12,396,000 gallons of water, when now Bourassa is claiming  
7 PWCo purchased 30,584,000 gallons. This type of misleading and incorrect information causes the Staff  
8 and Intervenors to make proper calculations on improper information, however the source of the  
9 problem is the Company and its advisors making massive errors, misleading statements, improper  
10 accounting, use of wrong accounts, etc. This disclosure by Bourassa also, makes the water lost to leaks  
11 move from the reported 7.3% (accepted by the Staff based completely on the Company's reports) to  
12 30.0%, which is unacceptable.

13 On Rebuttal page 25 lines 11-19, Mr. Bourassa claims outside service costs are not "massive",  
14 yet he admits to making a \$38,000 correction to the test-year expenses. Also, since the Company has  
15 apparently allocated these costs from Brooke Utilities, it is hard to know how massive the outside  
16 service costs are until the Commission issues rulings that allow the Staff and the Intervenor's full access  
17 to the books of Brooke Utilities. These allocated expenses and transactions are not done at arms-length,  
18 since Mr. Hardcastle is the responsible party for Pine Water Co., Strawberry Water Co., and Brooke  
19 Utilities and he can, at will, make decisions more profitable to the un-regulated Brooke Utilities at the  
20 complete disadvantage of Pine Water Co. or Strawberry Water Co. There is apparently no one within  
21 the subsidiary companies like PWCo to push the parent company to be fair to the subsidiary firm in  
22 terms of allocated costs and terms of contracts between subsidiaries and the parent, as illustrated by  
23 outside service cost allocations or, for example, the 6.81 times markup of costs to wheel water down the  
24 Magnolia pipeline.

25 At Bourassa Rebuttal page 26 lines 22-26 and Rebuttal page 27 lines 1-7, Bourassa again makes  
26 massive corrections (\$16,325 in 1999 and \$4,447 in 2001) to repairs and maintenance expenses for prior  
27 years. This admission supports the District's Motion to Compel for more years of data, and it again  
28 highlights the ridiculousness of Bourassa's and Hardcastle's claims that the District had no evidence  
29



1 behind its claims of accounting errors, inconsistency, and misleading records presented by the Company  
2 in its Application and Annual Reports.

3 Mr. Bourassa's statements at Rebuttal page 27, where he writes "I believe my rebuttal testimony  
4 demonstrates the District does not have a full understanding of the facts," smacks of ridiculousness,  
5 arrogance and a misunderstanding of the facts on his part. The major adjustments, corrections, and  
6 restatements he has made to the test-year case are ample evidence of the Company's sloppy and  
7 misleading presentation of the facts. His continued statement in that same paragraph that the "The  
8 Company's financial condition is poor, without any need to "enhance" the facts, due in large measure to  
9 the past (and on-going) water supply problems in Pine, Arizona" is again poor logic and an attempt to  
10 mislead the Staff, Commission, and the Intervenors since "limited water" in Pine has nothing to do with  
11 financial presentation inconsistencies, misleading facts, and poor accounting. and inclusion of costs that  
12 unjustifiably increase the rate base or the allowable expenses.

13 On page 26 lines 6-21 of the Bourassa Rebuttal, costs of purchased water can still not be  
14 calculated accurately by the Staff or the District since support documents contained within discovery  
15 Requests to Produce, Attachment 5, contains bills for delivery of water to East Verde Park and Tonto  
16 Basin, obviously not belonging to PWCo. Also, Mr. Bourassa has made no attempt to refute Mr. Jones'  
17 testimony at Jones Direct Testimony page 10, however Mr. Jones could re-calculate the cost based on  
18 the fact the 2002 Annual Report under reported the actual amount of purchased water by 150% of the  
19 amount reported.

20 On page 29 lines 3-11 of Bourassa's rebuttal, the cost of capital cannot be adequately determined  
21 until the issue of how much of the \$533,000 inter-company payable is caused by wheeling costs and how  
22 much is for plant additions. At this point, he claims that "\$178,000 of the \$533,000 was related to  
23 financing of plant additions for 2000, 2001, 2002, and 2004". At Rebuttal page 30 lines 20-25, he  
24 claims that \$443,924 of the \$533,000 is for wheeling charges. Adding \$178,000 to \$443,924 equals  
25 \$621,924, which is more than the \$533,000 by \$88,924. How he explains in his rebuttal at Rebuttal  
26 page 30 lines 18-25 that the \$132,732 comes into play as contractual services-other, I cannot determine.  
27 In general, Mr. Bourassa needs to better explain the whole situation related to the inter-company payable  
28 since his facts do not add up, are confusing, and amounts are inconsistent in different parts of his direct  
29 and rebuttal testimony.

1  
2 At Bourassa's Rebuttal page 30 1-10, it seems Mr. Bourassa is trying to blame Brooke Utilities'  
3 financial burden related to Pine Water Co. directly on the Staff for not recommending that Brooke  
4 discontinue funding the cash needs of PWCo that would then go bankrupt. It seems like he is suggesting  
5 that Brooke may "stop infusing capital into Pine Water in one form or another, as it has done to keep the  
6 Company afloat". Is this the Plan? This incredulous statement is another prime reason the Commission  
7 should allow the Staff and the Intervenors direct access to the books of Brooke Utilities and its related  
8 entities to see if there is enough strength there to keep PWCo afloat while they try to re-state their  
9 financial records to reflect the truth of the real situation.

10 The rebuttal discussion of Mr. Bourassa Rebuttal page 28-33 concerning the cost of capital and  
11 fair interest rates on notes should be settled by the use of the Staff's recommendations which seem  
12 logical and well prepared. Discussion efforts related to these topics is of far lesser importance than  
13 accurate records at this time, where, for instance (a) a simple correction of property taxes to the correct  
14 levels will change investment return by a substantial percentage, (b) making the wheeling charge other  
15 than a 6.81 times markup will reduce potential profit in the test-year by several hundred thousand  
16 dollars, and (c) other required adjustments should completely change the picture of this company.

17 At Bourassa Rebuttal page 36, the withdrawal of the request for an exploration surcharge is  
18 appropriate, however the explanation for withdrawal as given by Mr. Hardcastle in his testimony at  
19 Rebuttal page 19 9-22 did not seem to take account of the fact that the referenced use of funds was to be  
20 carried out under vague plan by Pine Water Co. and Brooke Utilities. The inclusion of Brooke Utilities  
21 as a user of the funds was what concerned me the most, since Brooke is an unregulated company.

22 **Mr. Hardcastle's Testimony:**

23 At Hardcastle Rebuttal page 2 1-26, Mr. Hardcastle bemoans the fact that "the inherent mistrust  
24 of Pine Water and Brooke Utilities continues to undermine any meaningful attempt of addressing the  
25 area's water supply problems". Because of the many errors, misstatements, and inconsistencies of data  
26 and reported information, and based on the Application and Testimony of all parties to this process, it is  
27 easy to see why the County, the ratepayers, and others (probably including the Staff) have a difficult time  
28 accepting the statements, schedules, and presentations of PWCo and Brooke Utilities at face value.  
29

1 At Hardcastle Rebuttal page 3, and throughout his rebuttal testimony, Mr. Hardcastle represents  
2 that the District has a “clear intention to expand the scope of this proceeding to further its efforts to  
3 condemn or otherwise acquire the assets of Brook Utilities in the Pine-Strawberry area, including the  
4 assets of Pine Water, at the lowest possible cost”. Mr. Hardcastle should recall that the official Board of  
5 the District, as elected by the ratepayers and property owners of the District, prior to any disbanding of  
6 the District Board due to resignations of five members, were the ones who passed the resolution (several  
7 months prior to most of the resignations) to authorize a feasibility study to determine if it would be wise  
8 for the District to attempt a purchase, or if necessary a condemnation of, the distributor of any water the  
9 District might locate and develop. In general, those taxed by the District were concerned that if they  
10 were taxed significantly to find and develop a sustainable and long-term supply of water for the area,  
11 they weren’t sure if they wanted (a) to give the water to Pine Water Co. or Brooke Utilities to distribute,  
12 (b) sell the water at a low price to the only reasonably possible buyer (PWCo or Brooke) willing to pay  
13 for the water, or (c) having the new found supply of water condemned by the major suppliers of water  
14 (PWCo, Strawberry Water Co., or Brooke Utilities).

15 The same reasons for concern still face the Board of Supervisors (acting as the Board of  
16 Directors of the District), thus they need to protect and serve the ratepayers, property owners, and  
17 business owners within the District by assuring that the pending case before the Commission (as ordered  
18 to take place by the Commission) is carried out in a fair and just manner to the ratepayers, the Company,  
19 and the property and business owners. Based on preliminary reviews of the Application, the Board of  
20 Supervisors decided that the intervention process was the only course to take to assure a fair hearing.  
21 The Board of Supervisors and the Administrator are placing their faith in the Commission and the due  
22 process of their procedures to allow an equitable resolution to the long-standing problem between the  
23 Pine-Strawberry people and the water utilities serving their areas.

24 At Hardcastle Rebuttal page 4, Mr. Hardcastle relies heavily on the fact the consultants who  
25 prepared the hydrological study commissioned by the District (*Investigation of Groundwater Availability*  
26 *for the Pine/Strawberry Water Improvement District, i.e. the “Study”*) have drawn some conclusions  
27 that support Hardcastle’s position that there is no water to be found in Pine. The Study, as its authors  
28 suggests, is controversial in some of its conclusions and in its admonishment of prior studies, however it  
29 is a valuable tool for additional discussion and consideration by future citizens, Board members, and

1 those attempting to solve water problems in northern Gila County. Not all prior Board members who  
2 authorized the study agree with all the conclusions. Competing consulting firms who proposed to do the  
3 Study do not fully agree with all the conclusions. Practitioners currently operating in the Pine-  
4 Strawberry area do not fully agree with the Study. Thus, it is somewhat unfair for Mr. Hardcastle to rely  
5 heavily on the Study to imply that because the District paid for the Study, it must be "right" and the  
6 District must now be contradicting itself.

7 At Rebuttal page 6, Mr. Hardcastle's charge that the consultants who authored the report  
8 (Morrison Maierle, Inc.) overestimate the availability of water supplies because they wanted "to foster  
9 growth". No substantiation for such a charge against the authors is presented. The narrowing of the  
10 scope of the Study to include only one recommended well site (rather than three) occurred by change  
11 order after most of the Board had resigned, and before the County became involved. Thus, a focus on  
12 more than one possible well site was lost and the study began to look narrower than originally intended.

13 After discussion with others familiar with the report and the hydrological conditions in the Pine-  
14 Strawberry area, the Administrator and Mr. Jones agree that the definitive conclusion reached by Mr.  
15 Breninger, the District's agent for the study, that "We Have the Water!" Breninger Direct Testimony  
16 page 5 (also pointed out by Hardcastle Rebuttal page 7) is premature.

17 To better understand (a) the complexity of the water location issues and the associated costs of  
18 developing wells, and (b) past efforts related to involving Brooke Utilities in regional water efforts, the  
19 District has engaged Michael Ploughe, Professional Geologist of Arizona Hydrosources, Inc. to review  
20 the Study, the testimony, and the facts regarding the issues of water availability and exploration efforts  
21 in and around Pine, AZ. Mr. Ploughe (see Exhibit 1 for resume) is the Water Resources Hydrologist for  
22 the Town of Payson, AZ. located approximately 15 miles from Pine, AZ. As an independent consultant,  
23 he has been involved with numerous water projects in the Pine area and with two deep holes into the  
24 Redwall limestone layer referred to frequently in the Study. His response to various aspects of this  
25 situation and the related Study and testimony is included in a separate section of the District's surrebuttal  
26 testimony..

27 Mr. Hardcastle's criticism at Rebuttal page 14 that "to my knowledge, however, the District has  
28 not increased the water supply available to the Pine-Strawberry region by a single gallon" is short-  
29 sighted and seemingly an indication of disrespect and probable non-cooperation in the future. The

1 District, the Northern Gila County Water Plan Alliance, and the Mogollon Rim Water Resources  
2 Management Study partners (PSWID, the Town of Payson, and the Bureau of Reclamation) want  
3 cooperation and some support from Brooke Utilities that there is a possible solution to the problem of a  
4 long-term reliable and sustainable water supply for all the Rim Country.

5 The District fully believes that for less than \$10 per month per parcel in Pine and Strawberry, a  
6 long-term solution for much of the problem can be reached. Monthly costs of \$100-\$500 per month as  
7 suggested by Mr. Hardcastle at Rt. 16 seem outrageous and some sort of scare tactic to discredit the  
8 District. He asks "Are the 2000 Pine Water ratepayers really prepared to accept the economic impact of  
9 what the District wants to do to solve the problem? If they are, then why hasn't such a solution been  
10 implemented long before now?". Somehow, Mr. Hardcastle seems to know "what the District wants to  
11 do to solve the problem" Hardcastle Rebuttal page 16-22. This conclusion on his part must be based on  
12 his improper believe that the Study is the ultimate position of the District, again another poor assumption  
13 on his part.

14 At Hardcastle Rebuttal page 18 lines 20-26, Mr. Hardcastle questions where Mr. Jones "came up  
15 with the idea the ratepayers' money being collected under the surcharge would go to Brooke Utilities".  
16 This involvement of Brooke Utilities in handling these exploration resources (approximately \$20,000  
17 per month) was disclosed by Hardcastle when he stated in direct testimony that "this surcharge would  
18 help offset the costs to be incurred by *Pine Water and Brooke Utilities* while helping to better allocate  
19 the risks associated with such capital projects" (emphasis added) Hardcastle Direct Testimony page 12  
20 lines 15-16. Since Pine Water has no staff directly employed to handle this type work, it was not  
21 surprising that Mr. Hardcastle would state Brooke would be offsetting costs against the surcharge for  
22 exploration.

23 At Hardcastle Rebuttal page 20 7-8, Mr. Hardcastle states, related to the "augmentation"  
24 program, "the Commissioners correctly concluded that it is a viable alternative, in part, because  
25 ratepayers can control their costs of such supplemental water supplies based on their personal  
26 consumption". When the formula for allocation of the augmentation charge is fully analyzed, it  
27 indicates that proportional costs of augmentation are charged to each water user based on the water the  
28 ratepayer used in the prior month. Thus, a ratepayer who uses any water during the prior month is  
29 subject to paying their proportional amount of the augmentation expense, even if they cut their personal

1 water use by 99%, while their neighbors or fellow ratepayers, for instance, used enough water to cause  
2 water to be trucked in under the augmentation procedures. Therefore, ratepayers cannot really control  
3 their personal costs of such supplemental water based on their personal consumption unless they use no  
4 water at all. If they use any water, they can only control the percentage of the augmentation fee they pay.  
5 This statement and explanation by Mr. Hardcastle is an example of the type of misleading information  
6 that needs to stop for the benefit of consumers, the Intervenors, the Staff, and the Commissioners  
7 themselves.

8 In terms of Mr. Hardcastle's explanation of ownership of Project Magnolia at Rebuttal page 21-  
9 24, it appears that the best evidence of ownership are the facts that the project was listed as a \$17,040  
10 asset on the plant listing in 1998, and it was included in CWIP and also listed as a capital project to be  
11 funded with stock during the Company's last rate case. The Staff appears to have properly recognized  
12 this situation when Fernandez Direct Testimony page 8 lines 2-4 indicated an important fact to support  
13 his argument that the pipeline should be returned to the books of PWC because "the fact that the  
14 application (filed February 23, 1999) reflected approximately 75 percent of Project Magnolia's cost in  
15 the books and records of the Company clearly established ownership status". This ownership situation  
16 could be better analyzed if the Staff and Intervenors had full access to the books of Brooke Utilities,  
17 which has been requested by the District and to this point blocked by the Applicant. Since many  
18 transactions between PWCo and Brooke Utilities have occurred in a non arms-length environment and  
19 documentation is weak as to intentions, the only solution to the ownership question is to rely on the  
20 documentation that was in place at the start of the project. Trying to explain away the ownership  
21 problem by criticizing Mr. Fernandez for concluding "the project was included in the Company's CWIP  
22 because next to the listing for Project Magnolia is a cost amount equal to \$17,040" rather than \$450,000  
23 does not take into account the fact this is a "work in process" account that may have had only \$17,040 in  
24 pre-construction costs at that time. Mr. Hardcastle then indicates at Rebuttal page 22-23 that "there is a  
25 serious error with respect to that listing", again supporting his case by claiming a major record keeping  
26 error in prior filings with the Commission. This admission supports the Districts contention that the  
27 records of the Company and public filings of the Company contain significant errors, misleading  
28 statements, and inconsistencies.

1 At Rebuttal page 24 and 25, Mr. Hardcastle tries to support his case for Brooke Utilities owning  
2 the Magnolia Project based on the fact the pipeline was to risky for PWCo to own. At Rebuttal page 25  
3 lines 1-7, he concluded “at the time the pipeline project was conceived, Brook Utilities faced the risk  
4 that it would never be used. It faces additional risks every day it owns the project because Pine Water  
5 pays only for actual water delivered, there are no standby or other charges (sic.)”. By not having arms-  
6 length transactions between PWCo and Brooke Utilities, there is no difference in risk to Brooke since it  
7 could impose additional charges or change the wheeling agreement at any time. Besides, Mr. Hardcastle  
8 has continually supported the notion the Pine Service area has only limited water supplies and PWCo  
9 and its ratepayers would have been in big trouble the last few years if it wasn’t for the existence of the  
10 pipeline. Therefore, “excessive risk” as the support and logic of Brooke Utilities owning the pipeline  
11 since the beginning is weak, as is the argument at Rebuttal page 26 9-10 that high risk “of Project  
12 Magnolia were sufficient enough that they should be borne entirely outside the regulatory arena”. Also  
13 weak is the argument at Rebuttal page 26 21-22, that since “the County wants Brooke Utilities out of the  
14 water business in the Pine-Strawberry region” the pipeline needed to be owned by Brooke to avoid the  
15 pipeline becoming subject to the County and/or District’s powers of eminent domain”. It would still be  
16 subject to the powers of eminent domain regardless of which entity owned it. At Rebuttal page 27,  
17 Hardcastle claims the “District recognizes that Project Magnolia is owned by Brooke Utilities”. This  
18 statement in the introduction was based on common belief at the time and not on any basis of factual  
19 investigation by the consultants who authored the *Investigation of Groundwater Availability*.

20 At Hardcastle Rebuttal page 29 lines 17-21, Mr. Hardcastle states that the cost of trucking water  
21 is the proper starting point to determine a fair rate for wheeling water through the Magnolia Project  
22 “because there are no other viable water supplies readily available to Pine Water, every gallon of water  
23 delivered through Project Magnolia is a gallon that does not have to be hauled”. The idea that the  
24 financial return to the unregulated owner of the Applicant should be based on some alternative service  
25 operation (trucking of water), rather than the cost of the activity actually occurring, makes that argument  
26 seem irrelevant. At Rebuttal page 30 3-7, Mr. Hardcastle points out a more traditional approach of  
27 basing sales revenue on actual costs and a fair rate of return of 10%, the cost per 1000 gallons would be  
28 \$12.37. No basis for calculation of this number is presented, and it certainly does not reflect the actual  
29 operating costs of \$34,000 (see Interrogatory answer 21), plus a 10% return on costs incurred.

1 Hardcastle's suggestion of using the value that might be placed on the pipeline by a condemning  
2 authority is irrelevant since the pipeline belongs on the books of PWCo as suggested by the Staff and as  
3 discussed above.

4 At Hardcastle Rebuttal page 33, he indicates "Supervisor Christensen has made no secret of his  
5 desired to control the water delivery and development process in Northern Gila County. No evidence for  
6 drawing such a conclusion is presented, and in fact programs like the Northern Gila County Water Plan  
7 Alliance and the Bureau of Reclamation Project are long-term programs supported by many other  
8 stakeholders that show a strong willingness on Mr. Christiansen's part to have a broad base of  
9 participants involved in the overall solution to a dependable source of water in Northern Gila County.

10 At Rebuttal page 33 lines 18-19, Hardcastle states, "the District and its agent, Intervener John  
11 Breninger, declare the problem solved". No support for that statement in terms of the District is  
12 included and probably cannot be found even though Mr. Breninger's personal opinion may be accurately  
13 reflected.

14 At Rebuttal page 34 lines 25-26, Mr. Hardcastle has ignore the statement that was clarified in the  
15 Interrogatory answers which stated that the "returning the Pine-Strawberry Water Improvement System  
16 back into the hands of its citizens where it justly belongs" refers to returning the Board of Directors to  
17 the citizens, not the "system" since the District has no "system". Also, his statement a Rebuttal page 35  
18 1 improperly quotes Mr. Jones saying the "ratepayers will ultimately demand to take control of the water  
19 development, any water treatment, and the distribution of water in the CC&N service areas of both Pine  
20 Water Co. and Strawberry Water Co." In reality, Mr. Jones was expressing an opinion of what he  
21 expects might happen in the future when he stated "I believe the ratepayers will ultimately demand to  
22 take control . . . ." which is hardly the same as saying "ratepayers will ultimately demand".

23 At Hardcastle Rebuttal page 37, he claims the District is attempting to use this proceeding to  
24 further its efforts to acquire the assets of Brooke Utilities because the District (a) sought documents  
25 related to the value of its certificate of convenience, (b) asked the question if the Company had discussed  
26 the option of bankruptcy of Pine Water Co., and (c) sought financial information from Strawberry Water  
27 Co, Brooke Utilities, and the Owners of Brook Utilities. This information was sought by the District in  
28 an attempt to determine the degree of financial stability of the Brooke operations and to assess the level  
29 of risk in the operations that is necessary to determine (a) the rate of return that should be allowed in the

1 rate hearing, (b) the ability of the Brooke entities to potentially finance the efforts to find new water or  
2 improve the system, and (c) to determine if the Applicant, due to its stated poor financial condition, was  
3 evaluating the options of getting out of the water business in the certificated service areas of Pine and  
4 Strawberry. The Company referred to its poor financial condition throughout its Application, and that  
5 instability could gravely affect the ability to generate the short-term of supply of water, which is equally  
6 as important as the long-term supply of water. An additional reason for seeking information on the  
7 related firms to PWCo was the confusion caused by PWCo reporting to the ACC Utilities Division  
8 throughout many documents they were owned by Brooke Utilities, Inc., when in fact the last several  
9 years of Annual Reports to the ACC Securities Division indicated they were owned by Crystal  
10 Investments, LLC. The apparent lack of arms-length dealings between the inter-company affiliates  
11 certainly justifies looking beyond the Applicant only, since it was readily apparent from the financial  
12 information presented that the Applicant was not standing on its own in terms of generating cash to  
13 support day-to-day operations. That cash flow was coming from non-payment of accounts payable to  
14 Brooke Utilities, the real apparent financial strength behind PWCo.

15 In terms of Mr. Hardcastle's comments at Rebuttal page 38-39 stating that "Mr. Jones goes on to  
16 testify that substantial critical information has been left out, misstated or presented in a confusing  
17 manner", the responses of the Company in the interrogatory answers and the rebuttal testimonies of  
18 Hardcastle and Bourassa admitting to numerous errors in record keeping and misstatement of facts that  
19 lead to confusion is ample evidence supporting Mr. Jones' opinion. Just because the Staff has  
20 determined that the Company had provided all required documents as required in the proceeding does  
21 not mean that the documents are deemed complete and accurate. See Bourassa *Id.* and Hardcastle *Id.*

22 At Hardcastle Rebuttal page 39 lines 13-14, he indicates Mr. Jones has not "presented any  
23 evidence demonstrating improper allocation of costs and revenues between affiliated entities. The  
24 problems of PWCo paying property taxes belonging to Strawberry Water Co. Jones Direct Testimony  
25 page 8 and a water hauling bill being paid by Pine for water hauled to East Verde Park and another to the  
26 Tonto Basin (see Requests to Produce Attachment 5 returned by PWCo) are good examples of the  
27 problems Mr. Jones was referencing.

28 Mr. Hardcastle's testimony at Rebuttal page 40 lines 19-25 is interesting and to the point in  
29 agreeing that transactions between Strawberry Water and Pine Water or between Brooke Utilities and

1 Pine Water are subject to Commission scrutiny. He indicated "Absolutely, I would even agree that such  
2 transactions require a higher level of scrutiny than transactions between Pine Water and unaffiliated  
3 entities, as I have discussed with respect to Project Magnolia". He continues, "It means that the  
4 Commission should ensure that such transactions take place in a manner that reflects the fair value of the  
5 goods or services being provided without unduly impacting the ratepayers". His position is absolutely  
6 correct, however I wonder why he is so adamant that the Commission or the District should not be  
7 allowed to review the records of Brooke Utilities to substantiate the Staff's and District's concerns  
8 related to ownership of Project Magnolia, the fact bills for taxes are being charged improperly to PWCo,  
9 hauling costs and bills for water being transported to other subsidiaries are being charged to PWCo, that  
10 \$15 per 1,000 charge for wheeling water is fair to the ratepayers, etc.

11 At Hardcastle Rebuttal page 41 6-25 and Rebuttal page 42 lines 1-2, he disagrees with the  
12 District's assertion that the implementation of the Company's curtailment tariff (done at the demand of  
13 the Commission) is an admission "that Pine Water cannot provide adequate water service". Just because  
14 the Commission ordered the curtailment tariff certainly does not change the fact that the Company has  
15 not created adequate water resources for the citizens of Pine. His statement that "In other words, Staff  
16 recommends a more stringent curtailment tariff, the Commission orders it, Pine Water implements it and  
17 our customers and Gila County proclaim that we are a bad service provider. This is the environment we  
18 operate in, one in which parties with differing points of view throw around baseless accusations". Does  
19 Mr. Hardcastle feel if something like curtailments is forced upon Pine Water, it must mean it is was  
20 someone else's responsibility to provide adequate service? The negative environment that he refers to  
21 that PWCo "operates in" is one created by this type of situation and the personal attitude of Mr.  
22 Hardcastle where responsibility is not accepted by the Company and he conveniently attempts to shift  
23 the blame for the negative environment onto the ratepayers who have no or very limited water, or onto  
24 the County that has no authority or responsibility to supply "new" water. The District was formed and is  
25 intervening at this time because PWCo has not been able to adequately carry out its responsibility in  
26 terms of supplying a long-term adequate supply of water to the ratepayers of Pine Water Co.

27 At Hardcastle Rebuttal page 42 lines 3-22, Hardcastle assumes that the Staff Engineer (Marlin  
28 Scott, Jr.) actually verified the PWCo water loss percentage in the process of stating that the 7.3% loss  
29 "level is acceptable to Staff". Obviously, Mr. Scott can properly calculate the percentage of loss, but he

1 clearly indicated his calculation were based on the fact "The Company reported 56,107,000 gallons  
2 pumped/purchased and 52,060,014 gallons sold", resulting in a water loss of 7.3%" Scott Direct  
3 Testimony At Exhibit MSJ, page 5 of 15. Mr. Scott is not expected to audit all the meters and the  
4 pumping logs to see if the numbers presented by the Company add up. He is reasonably allowed to rely  
5 on the numbers the Company's President (Mr. Hardcastle) is willing to certify in its Annual Reports to  
6 the Commission. Mr. Jones' willingness to talk to water suppliers to the District such as Mr. Fumusa  
7 (see Interrogatory answers 54-55 for details and references above on page 3 paragraph 3 whereby  
8 Bourassa admitted at Rebuttal page 24 lines 4-16 that the purchased water total was really 30,584,000  
9 gallons, not the 12,396,000 the Company reported in the 2002 test-year Annual Report to the  
10 Commission, resulting in a real loss of 30.0%, not 7.3%). In addition, Mr. Hardcastle's claim that the  
11 loss percentage testimony presented by Mr. Jones was not his own analysis (see Hardcastle Rebuttal  
12 page 42-43) is based on the fact the District disclosed, under the Discovery process, a simple table  
13 tabulated by Mr. Jackson (a District consultant) that summarized the loss percentages reported on the  
14 Annual Reports to the ACC. Mr. Jackson and his staff person (located in Phoenix) collected the  
15 numbers from the Annual Report, however Mr. Jones clearly did the analysis and the further  
16 investigation to determine the real truth, since Mr. Jones knows enough about water system operation  
17 (23 years experience) to know only the best of new systems has less than 8%-10% water losses. Further  
18 on this issue, at Hardcastle Rebuttal page 43 lines 17-25, he claims "Mr. Jones is testifying regarding  
19 information he claims to have obtained from a third party selling water to Pine Water" and "Mr. Jones  
20 has not provided anything beyond his testimony to support his position". Apparently, Mr. Hardcastle did  
21 not read the Interrogatory answer from Mr. Jones at 1.54 and 1.55 that fully explained Mr. Fumusa of  
22 Solitude Trails as the source of his information and the source of the document disclosed at 1.55.1 of the  
23 Exhibits for three plus years of water sales to Pine Water.

24 **Surrebuttal to Answers to Interrogatories by Pine Water Company:**

25 Since PWCo has not provided complete information as requested by the District, it should be  
26 noted the District has filed a Motion to Compel in an effort to obtain adequate information to determine  
27 the fair rate of return and value of the test year assets utilized in PWCo. As of January 19, 2004, not all  
28 information has been provided to the District.

1 Question 1. The respondent has apparently given only part of the basic information requested  
2 since only Strawberry Water Co. ("SWCo") and Starlight Pines Water Co. are mentioned as suppliers.  
3 Jones' Direct Testimony Jones. 17 included information and spreadsheets of water purchases from Mark  
4 Fumusa who claims he has been paid monthly by PWCo for water purchases, and that he supplied over  
5 12,000,000 million gallons in 2001, 6,600,000 in 2001, and 8,402,440 gallons in 2002. Why are he and  
6 any others, as defined in the Interrogatory Instructions, not listed as water suppliers?

7 Question 3. The respondent needs to supply a signed version of the agreement in Attachment 3.  
8 The District is not sure it has been provided the accurate information to this request since two of the  
9 three trucking invoices provided in Attachment 5 are for water delivered to Tonto Basin and East Verde  
10 Estates. Interestingly, the District notes that the third invoice includes water transferred from the Knolls  
11 system to Pine, although PWCo has said it only purchased water from Strawberry Water and Starlight  
12 Pines.

13 Question 4. At question 4 (which seeks explain the relationship of the various interconnected  
14 entities that deal with PWCo on other than an arms-length basis), the respondent seeks to not disclose  
15 such relationships. This information is important in determining just and reasonable rates for PWCo and  
16 should be included and is one of the major reasons for the Motion to Compel. Question 6. PWCo  
17 refuses to answer this question on the basis the information would not be admissible evidence. This  
18 evidence is needed to determine the fairness of the charges paid, especially from Strawberry Water Co.,  
19 and to determine the total amount of purchased water, such information a key component in the  
20 verification of the calculation of water loss percentages claimed by the Company.

21  
22 Question 18. It appears that PWCo has failed to disclose the two "Major Deficiencies" on each  
23 Drinking Water Compliance Status Reports existing as of 12-4-03 for Systems 04-043 and 04-034, both  
24 operated by Pine Water Company-Pine. Violations are for failure "to provide calendar year 2002,  
25 consumer confidence reports by July 1, 2004 (see Exhibit 2).  
26  
27  
28  
29

# **STATEMENT OF QUALIFICATIONS**

## **ARIZONA HYDROSOURCE INC.**

### **MICHAEL PLOUGHE P.G., PRINCIPAL**

**P.O. Box 891 Payson, Arizona 85547**

**(928)-468-0252**

**[mpoughe@azhydrosource.com](mailto:mpoughe@azhydrosource.com)**

#### **I. COMPANY PROFILE**

Arizona HydroSource Inc. was organized in 2000 to provide affordable water resources management and groundwater resources development services for northern Arizona communities. Company founder and Principal, Mr. Michael Ploughe, wanted to help solve water resources challenges rather than wait on endless studies. As such, Arizona HydroSource Inc. is a small results oriented company focused on professionally and systematically solving water resources challenges without over analyzing. Arizona HydroSource Inc. understands the realities of the water challenges facing northern Arizona communities and comes to the table prepared to identify real world solutions and present approaches that will save money while achieving results quickly in a complex environment. In Mr. Ploughe, Arizona HydroSource Inc. has more than nine years of valuable and specialized water resources experience. This experience has been earned while actively and successfully developing and managing groundwater resources primarily within northern Gila County, Arizona.

#### **II. Consulting Services Provided by AZ HydroSource:**

- ✓ Water Resources Planning and Management
- ✓ Regional and Site Specific Hydrogeological Analysis
- ✓ Remote Sensing, Fracture Trace, and Geological Mapping
- ✓ Groundwater Exploration
- ✓ Groundwater Data Compilation and Analysis
- ✓ Optimum Well Site Selection
- ✓ Aquifer and Pump Testing Analysis
- ✓ Water Budgets

### **Consulting Services Continued:**

- ✓ Reclaimed Water Recharge and Reuse
- ✓ Hydrologic Monitoring
- ✓ Technical Report Review and Preparation

### **III. Arizona HydroSource Inc. – Applied Water Resources Experience**

#### **Town of Payson**

AZ HydroSource's Principal, Mr. Michael Ploughe, is also currently employed as the Town of Payson's Hydrogeologist. He has been working in this capacity since 1996 collecting, analyzing, and maintaining water resources data to actively manage the Town's existing and future water resources. His responsibilities and duties for the Town of Payson include:

- 1) Acquisition and analysis of hydrological and geological data for the identification, characterization, and management of groundwater resources including: monthly groundwater levels, monthly pumpage, precipitation and recharge, remote sensing, geological interpretation, and well testing.
- 2) Acquisition and analysis of data in support of and implementation of the Town's long-term water resources management plan.
- 3) Prepares hydrological and geological reports, including annual groundwater status reports and hydrogeological studies. Reports include assessments of supply and demand, usage trends and projections, safe yield, geochemistry, recharge, and well pump testing analysis.
- 4) Conducts, analyses, and documents aquifer test and/or pump testing data.
- 5) Conducts groundwater exploration efforts, including the selection of deep groundwater well sites using proven scientific methods relating to structural features in bedrock environments.
- 6) Lithological logging of new and exploratory wells via physical sampling and borehole geophysics.
- 7) Coordination with state and federal agencies such as ADEQ, ADWR, and the USDA

Tonto National Forest, including the quasi-governmental agency, SRP.

- 8) Monitors, maintains, and analyses hydrological and geological data relevant to the management of Town effluent recharge and recovery projects.
- 9) Provides on staff technical oversight and project management skills for all groundwater projects.
- 10) Technical representative and advisor on geological and water resource related issues.
- 11) Reviews technical water supply reports for compliance with the Town's water supply requirements for new subdivisions.
- 12) Technical advisor on groundwater contamination sites including WQARF and UST.

### **Strawberry Hollow Development - Water Improvement District**

Providing technical consulting services relating to the ongoing exploration and successful development of deep groundwater source(s) in Pine, Gila County, AZ.

Status: 1999-current.

### **Oasis Homes**

Well capacity and sustainability analyses of an existing well, including an assessment of pumping capacity relative to the influences recent drought conditions and limited aquifer storage conditions. (Strawberry, Gila County, Arizona.)

Status: Completed in 2002.

### **Sharp Creek Campground**

Well capacity and sustainability analysis of an existing well in the Tonto National Forest near Christopher Creek in Gila County, Arizona.

Status: Completed in 2000.

### **Hardscrabble Mesa**

Preliminary well site selection services provided for property owners on Hardscrabble Mesa in Gila County, Arizona.

Status: Completed in 2000.

## **Ellison Creek Summer Homes**

Technical services provided for replacement of a well exhibiting silting and pumping capacity problems. An optimum deep well site was recommended. The well was drilled and capacity testing completed. Deep groundwater source(s) were identified and successfully developed from fractured limestone/dolomite and granite systems. Well pump testing revealed a capacity well beyond the needs of the community, assuring an adequate supply into the future. (Ellison Creek Summer Homes, Gila County, Arizona.) Status: Completed in 1999.

## **IV. Arizona HydroSource Inc. – Staff Qualifications and Affiliations**

### **Principal Hydrogeologist – Michael Ploughe P.G. #38738**

Michael Ploughe is an Arizona native who has been working with water resources in Arizona since 1992. His Bachelors of Science degree in Geology was earned from Arizona State University in 1994. That same year he completed geology field camp at Arizona State University's Camp Tontazona, located near Kohl's Ranch, Arizona. He learned a great deal about the geology and hydrogeology of the "Rim County" while mapping the geology in areas beneath the Mogollon Rim. Michael considers this experience one of the keys to his success in the region as a hydrogeologist. He considers education a lifelong process and continually strives to learn more in the areas of hydrogeology and water resources management by keeping involved in water resources associations. In fact, Ploughe recently coauthored an extended abstract "Finding Water in the Cracks, Payson, Arizona" with Gaeaorama Inc. for the 2002 Arizona Hydrological Society annual symposium. Mr. Ploughe has cultivated over nine years of professional level experience while serving as the Town of Payson's Hydrogeologist and while working for the Arizona Department of Environmental Quality ("ADEQ") early in his career.

In 1999, Michael began advising for those needing help with their water resources in northern Arizona and in particular, northern Gila County. As a result, he formed Arizona HydroSource in 2000. Mr. Ploughe's experience as a consultant includes the identification, testing, and successful development of a deep groundwater well in the Ellison Creek Summer Homes subdivision. This well has sustained pumping throughout the worst drought on record in Rim Country. Ploughe is also currently involved in the exploration for deep groundwater in Pine, Arizona within the Strawberry Hollow Water Improvement District. This project is on going and preliminary pumping from the deep groundwater system points to its success.

Michael Ploughe began working for the Town of Payson in 1996. Mike's experience with the Town of Payson includes the implementation and management of many diverse water resources projects including: the direction of groundwater exploration efforts, field data collection and analysis, implementation of the Town's long term water resources management plan, managing and developing reclaimed water recharge projects, and water resources database development and maintenance. The Town has benefited greatly from his efforts.

During Mike Ploughe's term as the Town of Payson's Hydrogeologist, water production capability has been nearly tripled for the Town of Payson. His continued success can be attributed to his intimate knowledge and understanding of how groundwater occurs within the complex regional hydrogeological framework that is Arizona's Rim Country. He has been actively and successfully directing the most aggressive groundwater exploration program in the State of Arizona. The following is a brief summary of his achievements both within and outside of the Town of Payson:

- ✓ **Responsible for the site selection and development of the regions first productive deep groundwater well, constructed entirely within the regional fractured crystalline aquifer. This well's capacity tested at nearly 400gpm from a depth of 700-925 feet.**

- ✓ **Successfully deepened and rehabilitated two specially selected existing Town wells resulting in effective water production gains of more than 750gpm. One of these wells is clearly capable of producing in excess of 1,000gpm and theoretically could pump as much as 2,000gpm with the available drawdown.**
  
- ✓ **Successfully located a productive deep well site atop Birch Mesa near the Payson Airport. Previously, no groundwater resources were thought to exist in this area.**
  
- ✓ **The existence of deep groundwater producing zones in crystalline bedrock has been confirmed as a result of the work Mr. Ploughe has performed. These wells are all highly productive below depths of 400 feet and some to depths approaching 1,000 feet, into the bedrock itself.**
  
- ✓ **In his first consulting venture, a deep groundwater well site was successfully located and developed for Ellison Creek Summer Homes. This well was constructed within the regions fractured limestone and granite aquifers. Production capacity at this well exceeded the equipment used for testing. This well has proven to be more than adequate for the subdivision.**
  
- ✓ **All of the deep wells Mr. Ploughe has developed have sustained pumping throughout the region's worst drought on record.**
  
- ✓ **Managed and successfully completed two groundwater exploration projects within the Tonto National Forest, with a third pending. These efforts constitute the only on-going groundwater exploration program to successfully be conducted on federal lands within the Tonto National Forest in the Northern Gila County area. This exploration program is currently the only means to obtain much needed groundwater data from the public lands near Payson.**

- ✓ **Directed the drilling and completion of the first truly deep test well in Pine, AZ. This is the region's first well to successfully produce groundwater from a previously untapped and unconfirmed source. Though this effort is on-going it has clearly demonstrated that a deep groundwater source does in fact exist below Pine, AZ.**

Michael's early experience with the ADEQ from 1992 to 1996 included hydrologic characterization, remedial investigations, project management, report preparation, water quality sampling, and data interpretation and analysis. Through his time at ADEQ, Ploughe developed an understanding of how to work with State and Federal agencies while gaining an understanding of government process.

**Mr. Ploughe maintains membership in the following associations and/or committees:**

- ✓ **National Groundwater Association "NGWA"**
- ✓ **Arizona Hydrological Society "AHS"**
- ✓ **Arizona Water and Pollution Control Association "AWPCA"**
- ✓ **Arizona Rural Water Association "ARWA"**
- ✓ **Mogollon Rim Water Resources Management Study, Tech. Committee**

**In addition to his education earned from Arizona State University, Mr. Ploughe has completed and attended numerous specialized training courses and symposia:**

- ✓ Annual to Semi-annual attendance at AHS, NGWA, and AWPCA conferences and symposiums.
- ✓ Biennial symposium on artificial recharge and Integrated Water Management, AHS.
- ✓ Fundamentals of Groundwater Geochemistry, NGWA, 2000.
- ✓ Fracture Trace and Lineament Analysis: Application to Groundwater Resources Characterization and Protection, NGWA, Penn State University, 1999.
- ✓ Groundwater Flow and Well Hydraulics for Fractured Media, University of Wisconsin Madison, 1997.
- ✓ Groundwater Flow and Well Hydraulics for Porous Media, University of Wisconsin Madison, 1997.
- ✓ Borehole Geophysical Methods, COLOG Inc., Vail Colorado, 1995.

**Michael Ploughe holds the following licenses and/or certifications:**

- ✓ Licensed Professional Geologist – Arizona, #38738
- ✓ Certified Grade III Operator: Water Distribution and Treatment
- ✓ OSHA Hazardous Materials Certification

*Special Note: Mr. Ploughe is currently an employee of the Town of Payson. As such, Arizona HydroSource Inc. will not provide services within the Town of Payson. In Addition, AZ HydroSource Inc. will not provide services to clients where interests directly concerning the Town of Payson exist.*