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AZ CORP COMMISSION
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BEFORE THE ARIZONA CORPORATION COMMISSION

7
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
MICHAEL PLOUGHE

14
15 COMES NOW THE PINE STRAWBERRY WATER IMPROVEMENT DISTRICT and files its
16 surrebuttal testimony of Mike Ploughe P.G.

17 Respectfully submitted this 22nd day of December, 2003.

18 LAW OFFICE OF JOHN G. GLIEGE

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20
21
22 John G. Gliege

23
24
25 Original and thirteen copies of the foregoing
26 sent this 22nd day of December, 2003 to:

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

Arizona Corporation Commission
DOCKETED

JAN 21 2004

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1
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4 December, 2003 to :

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26
27
28 Mike Ploughe, surrebuttal testimony, final 03 12 22
29

1
2 **TESTIMONY OF MICHAEL PLOUGHE P.G.**
3

4 The management of the Pine Strawberry Water Improvement District {PSWID} asked me to provide
5 professional comments and/or recommendations regarding the District's Study and the testimony in the
6 Pine Water Co. rate hearings, I feel it necessary that I provide to you my professional opinion on topics
7 relating to both the hearing and the recently completed Pine Strawberry Water Improvement District
8 {PSWID} commissioned, hydrogeologic study. You will find my position regarding some issues will
9 differ somewhat from recent statements made by Mr. John Breninger, former PSWID board member
10 and some of the findings of the hydro geologic study. I do not intend to diminish the value of the report,
11 as I believe it is most valuable and certainly a step in the right direction. However, some facts of
12 regional significance were clearly not considered while others simply were not available in a timely
13 manner for the reports consideration. I will refer to the "Investigation of Groundwater Availability for
14 the Pine/Strawberry Water Improvement District" simply as the "Study". I will do this by topics as they
15 relate to the subject hearing:
16
17

18 *"The communities of Pine and Strawberry have historically experienced severe water shortages in the*
19 *summer months"*

20 Study, Executive Summary --- I agree with this conclusion.
21

22 *"... water supply shortages caused by seasonal decreases in well yields are the result of limitations in*
23 *the hydraulic properties of the fractured rock aquifers that supply water to wells in the PSWID area"*

24 Study, Executive Summary --- I partially agree with this statement. In as much as water supply
25 shortages are manifest by an inability to meet demand, this is also a function of storage in the
26 distribution system(s). With few exceptions, nearly all water systems in the northern Gila County region
27 experience a summertime peak demand in excess of water production rates. Because extreme demand
28 fluctuations are experienced, having seemingly excessive above ground storage is yet required in order
29 to be capable of meeting these peak demands. If storage is sized appropriately, a water system can

1 usually recover. Were an additional large storage facility constructed, it is conceivable that water
2 system(s) in Pine could continue to provide water, even in the face of declining well production.
3 Payson is an excellent example of this.

4
5 *"The investigations identify the northwest part of the PSWID as the most favorable location for*
6 *development of a well field in the Redwall Limestone and associated strata."*

7 Study, Executive Summary -- I partially agree with this conclusion. While the aforementioned
8 location may be a favorable one for one well, it is not feasible in the face of information demonstrating
9 that other related aquifer systems exist. The author of the Study dismisses fractured crystalline
10 basement rocks as non-porous with no yield except where fracture. The author also dismisses locating
11 wells in Pine, as it lies within the conceptual "recharge area" for the target Redwall system. As such,
12 the author minimizes any option for drilling wells in Pine itself. Yet, newly developed information in
13 the Pine area has proven that groundwater is clearly developable below Pine itself, from depths much
14 less than 2,000ft. and with a significant saturated thickness of the Redwall and units below. In addition,
15 no consideration was given to how another significant groundwater producer in northern Gila County
16 continues to meet its demands. The Town of Payson can produce 1,826af/yr of groundwater from a
17 fractured crystalline system, both within safe yield and within it's own recharge area. One of the
18 Town's wells regularly produces 850 gpm and is capable of more. This clearly demonstrates that
19 fractured crystalline basement systems are viable options for groundwater development as they are
20 clearly not "impermeable".

21
22 The following comments relate exclusively to rebuttal testimony presented by Mr. Hardcastle in recent
23 rate hearing proceedings.

24
25 **Page 11 line 9-12** *Mr. Hardcastle refers to the costs associated with drilling deep wells in the*
26 *"Strawberry Valley" as being approximately \$150,000 with an associated cost of \$200-300K annually*
27 *for exploration.* This may be a misunderstanding. I believe it was the Districts intention to relate these

1 costs as associated with the drilling of deep wells in Pine itself, not Strawberry Valley. The drilling of
2 wells in Strawberry Valley would obviously cost much more.

3
4 **Page 12 line 17-20** *Mr. Hardcastle's statement refers to the drilling or "punching" of (presumably*
5 *deep) holes in Pine as a waste of capital/customer investments. Per my discussions above, I clearly*
6 *disagree in his assessment of such an effort.*

7
8 **Page 13 line 16-19** *Relating to regional planning groups, Mr. Hardcastle says, "In my opinion, these*
9 *efforts are politically driven, politically motivated and unfairly offer hope to customers that if we*
10 *continue to study the problem long enough we will, eventually and after untold expenditures, find some*
11 *solution."* While past groups have floundered and most all have political ties, it is obvious that the
12 long-term water resources challenges facing the region, most likely, cannot be solved by simple locally
13 funded and supported efforts. Because of this, federal involvement is required with all that it brings,
14 the good and the bad. Mr. Hardcastle should know that the Mogollon Rim Water Resources
15 Management Study being sponsored by the Bureau of Reclamation "BOR" is a real effort, aimed at real
16 solutions or the likes of Payson and Gila County wouldn't be at the table together (because of prior
17 major differences). It is the beginning of a process that will more than likely lead to federal assistance
18 in the construction of big-ticket water resources solutions for northern Gila County on the whole. Most
19 importantly, this group is able to bridge many of the "gaps" between the players, through the innovative
20 approaches being taken. For this group, all options are being considered with the direct involvement of
21 SRP, a key element in any water resources solution for the region. The absence of Brooke (other than
22 their Community Relations Consultant at one meeting on December 16, 2003) from this group is
23 obvious, as they constitute a significant water provider in the northern Gila County region. It should be
24 noted that the BOR had made several attempts to bring Brooke to the table during formation of the
25 group. In addition, ADWR has made several attempts recently, also with no success.

26
27 **Page 15 line 22-24 and related discussion thru Page 17 line 1, Also relates to Page 25 line 11-19:**
28 *Mr. Hardcastle acknowledges the obligation of the Brooke Utilities to ensure an adequate supply but*
29

1 *qualifies it as limited to the drilling of high risk wells to depths around one third of a mile that are too*
2 *expensive for Pine Water's customers. One third of a mile is about 1,700ft. I suggest that developable*
3 *quantities of groundwater are present below Pine at depths less than 1,700ft. and at a fraction of the cost*
4 *estimates provided by both Breninger and Brooke. I would also suggest that the addition of a single*
5 *large storage facility, located such that it is capable of supplying the entire Pine system, be considered as*
6 *a key component, if not the first step. Note: When considering the size of the large storage facility I*
7 *would calculate it as follows: 2000 customers, peak demand of 3 times the base, that's equivalent to*
8 *6,000 customers, give them 150 gpd peak use, that's 900,000 gallons (round up to 1 mill.), It would be*
9 *wise to have at least two days supply in the storage system (ideally 3), So, Pine Water Co. has*
10 *985,000gal storage now (per commission report), they need one 1 million gallon tank in an appropriate*
11 *location, possibly connected to Project Magnolia. This would minimize, if not eliminate the need to*
12 *haul water, while also offering the added benefit of a potential for much needed fire protection.*