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ARIZONA CORPORATION COMMISSION  
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7 **Attorneys for the Complainants**

8 **BEFORE THE ARIZONA CORPORATION COMMISSION**

9 **RAYMOND R. PUGEL AND JULIE B.**  
10 **PUGEL, husband and wife as trustees of THE**  
11 **RAYMOND R. PUGEL and JULIE B. PUGEL**  
12 **FAMILY TRUST,**  
13 **and**  
14 **ROBERT RANDALL and SALLY RANDALL,**  
15 **husband and wife**  
16 **Complainants,**  
17 **v.**  
18 **PINE WATER COMPANY, an Arizona**  
19 **Corporation**  
20 **Respondent..**

**DOCKET NO. W-03512A-06-0407**

**NOTICE OF FILING REBUTTAL**  
**TESTIMONY**

21 **ASSET TRUST MANAGEMENT, CORP.**  
22 **Complainants,**  
23 **v.**  
24 **PINE WATER COMPANY, an Arizona**  
25 **Corporation**  
26 **Respondent.**

**DOCKET NO. W-03512A-06 -0613**

27 **JAMES HILL and SIOUX HILL, husband and**  
28 **wife and as trustees of THE HILL FAMILY**  
29 **TRUST,**  
30 **Complainants,**  
31 **v.**  
32 **PINE WATER COMPANY, an Arizona**  
33 **Corporation**  
34 **Respondent.**

**DOCKET NO. W-03512A-07-0100**

Arizona Corporation Commission  
**DOCKETED**

**JAN 25 2008**

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6 Phoenix, AZ 85007

7 Copies of the foregoing mailed/delivered  
8 This 23<sup>rd</sup> day of January, 2008 to:

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EXHIBIT A  
  
Rebuttal Testimony  
  
Of  
  
William F. Haney

## Testimony of William F. Haney, P.E.

Q: State your full name

A: William F. Haney, P.E.

Q: What is your experience regarding design and management of domestic water systems.

A: See resume attached.

Q: Have you reviewed portions of the testimony of Mr. Robert Hardcastle in these proceedings?

A: Yes

Q: Based upon your review do you have any comments to make concerning the testimony of Mr. Hardcastle?

A: Yes, On page 933 Mr. Hardcastle states: "Well, Mr. Shapiro, I'm not an engineer, but I retained the technical people to make that assessment based on the objective of the water company being able to use the – maximize the production. Because at the same time we have heard production estimates from the Pugel well that will range from 150 GPM to – I think I have heard as high as 700GPM.

And to be able to – it would make no sense whatsoever to be able to have that range of productivity basically stuffed in a small diameter piece of water pip and not be able to use what opportunity was there.

So based on being able to maximize the productivity of the well, and being able to utilize it for the benefit of all of the customers of Pine, this engineering firm came up with this proposal."

He further states on page 934: "Well, it doesn't put the water into the interconnection. It puts the water into – introduces the water into the system at the storage tank location where the water can be moved from there to a point in the water system where all of the customers can participate in that productivity."

The layout directed by Hardcastle and estimated by Tetra Tech would install a booster station at the Milk Ranch site and an 8 inch pipeline from the well site to the 300K gallon tank in north Pine. While this layout will work and would be very simplistic to operate, in my opinion, it is a very high cost option when other options are available at a significantly lower cost to construct and would also result in substantially lower operating costs.

As indicated on Attachment WFH1, the existing distribution system (according to E&R System Maps dated 1987) has distribution lines (6 inch) running southeast along Hwy. 87 from the 300K tank to the intersection of the alignment of North Pine Creek Drive. The line then turns south and follows North Pine Creek to the southern property line of the community school. A 4 inch line then runs west to a 150,000 (150K) gallon tank at the end of Watertank Road. The north-south line also continues south on Pine Creek Drive as a 4 inch line to the intersection with North Road. At this point a line extends to the east across Pine Creek and is within 250 feet of the Milk Ranch Well. Milk Ranch could be connected at this point and could provide water to the 150K tank which in turn, supply's most, if not all of the water to Pine Water Company's service area to the south and west of Hwy. 87 (roughly half of the total service area). If a small

(100-150 GPM) booster station were installed somewhere on the 6 inch line north of the southern property line of the school on North Pine Creek Drive, then additional capacity from the well could be delivered to the northern pressure zone within the community. As the northern zone "floats" off of the 300K tank, any water entering that pressure zone would then be available for use in the entire system north and east of Hwy. 87 and water could also be delivered to Strawberry if needed.

A preliminary estimate of costs to accomplish the above would be approximately \$20,000 to connect Milk Ranch to the 4 inch line and between \$110,000 and \$150,000 to construct the small booster station.

It should also be noted that use of the 4 inch line to deliver 150 GPM of water would result in a flow velocity of 3.2 feet per second in the pipe. Good engineering practice dictates that velocities of less than 4 feet per second are desirable. Hence, use of the 4 inch line could easily accommodate production from the well. Also, by using the existing distribution system to move the water, only about half of the water would be pumped to the upper zone, thereby resulting in additional energy savings (under the BUI layout, all of the water would be pumped to the 300K tank and then much of that water would then flow back down the system through a pressure reducing valve and into the lower pressure zone and 150K tank). Finally, it should be noted that boosting the water would result in a significant increase in line pressures (approx. 80 psi) from the proposed booster station to the intersection of North Pine Creek Drive and Hwy. 87 and this segment of line may require rehabilitation/replacement if line breaks become a problem. All other segments of the system would continue to "float" on the existing storage reservoirs at existing system pressures.

On page 1222, Mr. Hardcastle states: "It cost \$890,000 to connect his well to the source of supply, the storage tank that we have delineated in the proposal." He continues: "But I think the engineering cost study stands on its own, that the connection costs for the most effective and most efficient use of that well to connect to the proper point in the water system was about \$890,000."

While the layout will work and is very simplistic in concept, in my judgment it is a very costly and inefficient method of connecting the well. As previously stated, a design using a layout similar to Attachment WFH1 would utilize existing pipe and result in much lower operating expenses as only the water needed in the upper pressure zone would require booster pumping. Additionally, the most if not all, of the community south and west of Hwy. 87 could be served with minimal construction effort and water that was previously delivered from north to south could be retained in the upper pressure zone, thereby easing shortages there.

In addition to the above, use of an 8 inch line seems overkill and only adds to the cost of the project without providing benefit. While such size would be desirable for future fire protection as stated, it would be unusable for such purposes if the pipeline were a dedicated transmission main that discharged to the top of the 300K tank. No fire flow storage would be available under this scenario and only the well production would be available. If that same line connected to the bottom of the 300K tank, then it would be equally effective to merely connect the new pipeline to the existing at the intersection of North Pine Creek Drive and Hwy. 87, saving hundreds of thousands of dollars in pipeline costs.

On pages 1268-1270 Mr. Hardcastle states: "Did it cost 890,000 to connect Mr. Pugel's well to the same place that we would have in effect connected Mr. Peterson's well to the distribution of the water to all of Pine and have it available to Strawberry? Yes." "Would not have been the best solution, probably would not have been a practical solution; possible, yes." "Because if we, if we base our, if we base our water connection on the productivity, the claimed water productivity of the well, it would be a shame to not be able to utilize that well in its full capacity in the best possible place. Whether we had a water main that was available that was suitable, whether it was capable, whether it was sized properly enough to be able to accommodate all of the production from that well or not, very much in question."

Based upon the system layout indicated on the E&R Maps and available system hydraulics, the Milk Ranch Well is located in an excellent location for supplying nearly half of the service area with a simple connection to the existing system as described in my previous response. The entire system including Strawberry could be served by adding only a small booster station.

On page 1465 Mr. Hardcastle states: "I asked Mr. Bossert to devise, to develop an engineering cost estimate from the Pugel well so that we could maximize the productivity at the wellhead at the best possible locations in the Pine Water Company system. And he produced his engineering cost analysis." "Well, in general, I mean I guess I was, I was, I provided him some instruction with regard to the routing of the piping and where it needed to terminate within the Pine Water Company system. And he chose the best way to move the water off the property, off the wellhead site to that location."

Based upon the question from Mr. Gliege as to whether Mr. Bossert or Mr. Hardcastle designated the point of connection to the Pine Water Company's system, Mr. Hardcastle responded: "I did."

As indicated in the Hearing transcripts, the design was based upon direction given by Mr. Hardcastle. Usually some sort of analysis of alternatives, basis of design, or other similar document precedes selection of a specific alternative and development of design documents. In this instance, Tetra Tech's design memo does not reference any such documents. Additionally, this design does not appear consistent with more conventional design concepts that I have observed in the Phoenix metropolitan area. In fact, although it is a very simple approach to connecting to the system, it is possibly the least efficient and cost-effective means of connecting the well to the system.

On page 1474-1476, ACALJ Nodes questioned Mr. Hardcastle about whether or not Mr. Hardcastle considered other alternatives that may been less costly, but still provided some useful quantity of water. Mr. Hardcastle responded on page 1475: "Well, we didn't do that. And we didn't do that Your Honor, because I made the decision to attempt to maximize the well production." Further, on page 1476: "Well, Your Honor, again, Your Honor, I was, you know, I was focused on being able to use the maximum production. And my conclusion was being able to put the water in its maximum production into the water storage facility that I was, that I was contemplating allowed not only for the customers in Pine Water Company and south Pine and north Pine to be able to participate in that water, but also, it also had the opportunity to take that water and to ship it to Strawberry if I needed to. If I considered any other conclusion, I would

severely compromise that ability to do so. It seemed to me the most effective possible and most logical place to store the water. From that particular location I can move the water anywhere.”

It appears that the consultant was not given the opportunity to conduct an analysis of alternatives as is common engineering practice. Even if only a portion of the well production could have been utilized, the cost per gallon to connect the well to the service area south and west of Hwy. 87 would be only a fraction of that from the layout proposed by Hardcastle. Such a determination could have been easily made by the consultant if allowed to do so.

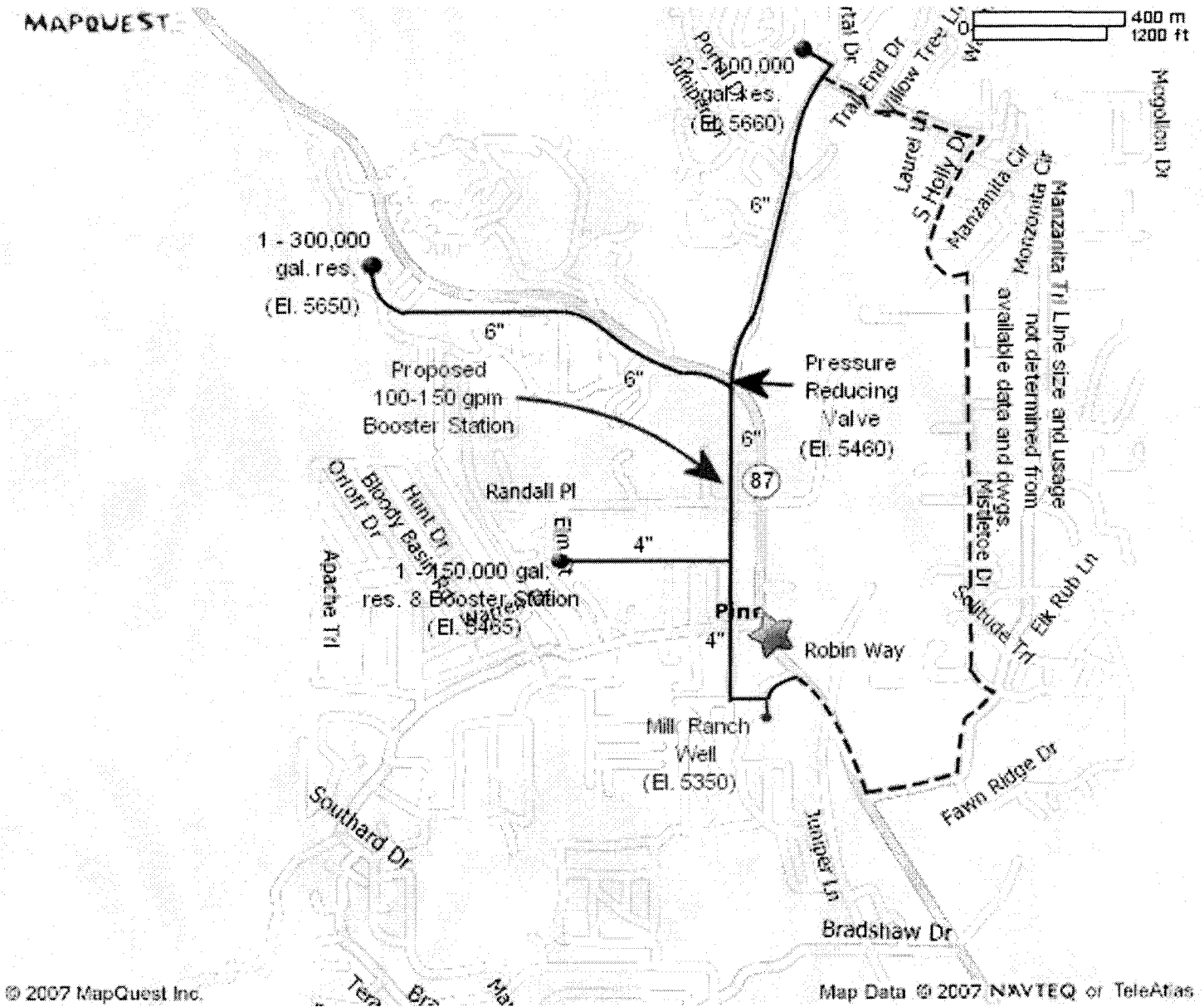
On page 1753 Mr. Hardcastle is again questioned on the feasibility of serving only a portion of Pine from the Milk Ranch Well. He responded no and offered the following explanation. “Because I think the way we would have to connect the well in its present location to the infrastructure that is around the surrounding area of the well would leave significant areas of the water system without service from that well that I don’t think would alleviate the problem.”

Connecting the well to the system with no other improvements would allow the Milk Ranch Well to serve most of the Pine Water service area west and south of Highway 87 for approximately \$20,000. This would also allow the remainder of the system to utilize well capacity freed up by Milk Ranch. While this one connection would not alleviate the long term supply in Pine, would provide some much needed, immediate relief for the customers.

Q: Does that conclude your testimony?

A: Yes

# Attachment WFH1



**Notes:**

- Data was obtained from 1987 E&R Water System Map, Google Earth, and field observations.
- All elevations and dimensions are approximate and should not be used for design purposes.
- Existing facilities are shown in blue, proposed improvements are indicated in red.

## Alternate Means of Connecting Milk Ranch Well to the Pine Water System

Drawn by: WFH

Date: 01/13/2008  
Revised:

PROFESSIONAL RESUME  
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EDUCATION:

B.S. in Civil Engineering, University of Nebraska, 1975  
M.S. in Environmental Health Engineering, University of Kansas, 1978

REGISTRATION:

Professional Engineer: Arizona, Kansas, Nebraska

EXPERTISE:

Public works/utility administration, management of water and wastewater utilities, design and analysis of water and wastewater treatment and handling systems, environmental regulations and policies.

EXPERIENCE:

June 1989 to Present--City of Mesa, Arizona

Currently serving as the Water Division Director in this rapidly growing city of 470,000. Assignments in this position include administration of all water and wastewater functions, which includes operation and maintenance, engineering review, budget preparation and oversight, and future planning. Responsibilities under my administration include water production and distribution, water treatment, wastewater collections, water reclamation, water quality, controls and instrumentation, and utility control center and dispatch.

October 1983 to June 1989--City of Sioux City, Iowa

As the Director of Utilities for a city of 82,000, responsibilities were for the administration of all municipal water, wastewater, and solid waste disposal functions which includes operation and maintenance, engineering, budget preparation, public relations, and future planning. The Utilities Department consists of five divisions and employs approximately 125 persons including wastewater treatment plant operations and solid waste collection and disposal, both contact operations.

August 1979 to October 1983--IBP, Inc., Dakota City, Nebraska

Served as the senior corporate environmental engineer for the largest red meat processor in the U.S. and was responsible for insuring that the corporation's industrial facilities remain in compliance with all applicable environmental rules and regulations. Responsibilities also included the design of the corporation's water supply, water, and wastewater treatment systems.

June 1975 to August 1979--Burns & McDonnell, Kansas City, Missouri

Responsibilities in this entry level position included a variety of feasibility studies, economic studies, and design projects in the field of water and wastewater engineering.

PUBLICATIONS (Co-authored):

"Trends in Privatization of Water Utilities," Roundtable, Journal of the American Water Works Association, November 1987.

"One Man's Sludge is Another's Harvest," Water Engineering & Management, December 1987 (Cover Article).

"Stretching Mesa's Water Supply Through Reclamation," Public Works, June 1991.

"Mesa, Arizona Successfully Implements Innovative Treatment Technology for Reclamation," Proceedings of Urban and Agricultural Water Reuse Specialty Conference, June 1992.

AFFILIATIONS:

American Water Works Association (Former Vice Chairman, Iowa Section)

Water Environment Federation

American Public Works Association

Arizona Water and Pollution Control Association (Former Member, Board of Directors)