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February 10, 2005

By Hand Delivery

Mr. Brian Bozzo
Compliance Officer
Utilities Division
Arizona Corporation Commission
1200 W. Washington St.
Phoenix, AZ 85007

Arizona Corporation Commission
DOCKETED

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Re: Compliance Matter; Decision No. 67166 (Aug. 10, 2004)
Docket No. W-03512A-03-0279

Dear Mr. Bozzo:

Included herewith is a copy of the Pine Water Company, Inc. Water Loss Reduction Plan filed pursuant to Commission directive in Decision No. 67166 (Aug. 10, 2004).

Please let me know if you need further information or have any questions regarding this matter.

Very truly yours,

Jay L. Shapiro

JSHA/mlh
Enclosure

- cc: Docket Control (Original and 13 copies)
- Dwight D. Nodes, Assistant Chief Administrative Law Judge (w/enc.)
- Jason Gellman, Esq. (w/enc.)
- Marlin Scott, Jr. (w/enc.)
- John Breninger (w/enc.)
- Robert Cassaro (w/enc.)

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Pine Water Co., Inc.
Water Loss Reduction Plan
ACC Decision 67166
February 10, 2005

INTRODUCTION

In Arizona Corporation Commission Decision No. 67166 (August 10, 2004), the Commission ordered Pine Water Company, Inc. ("PWCo") to submit "a detailed plan to address the Company's 12.6 percent test year water loss." Decision No. 67166 at 15. This Water Loss Reduction Plan is submitted pursuant to Decision 67166 and pertains to all service areas within PWCo's CC&N, which public water system is identified by the Arizona Department of Environmental Quality as Arizona Public Water System 04-034.

BACKGROUND: WHAT IS "WATER LOSS"?

Historically, the phrase "water loss" was defined as the difference between the quantity of water produced from wells or surface water sources and the quantity of water consumed by end-users, i.e., customers. Because end-user water consumption is measured solely in terms of metered water sales, the term water loss fails to consider water uses that do not produce revenue, such as emergency water (i.e., water used to fight forest fires) and water used for maintenance purposes (i.e., line flushing and testing). For this reason, use of percentages to establish standards for water loss has often been discounted as overly generalized. Instead, accurate water loss evaluation requires the consideration of numerous factors because the amount of total leakage is a function of pipe diameter, length of pipe, water pressure, age of pipe, as well as the amount of water delivered, among other factors. Without full consideration of these factors on a system-specific basis, any determination of water loss expressed solely on a percentage basis is, at best, overly simplistic.

For PWCo, it was agreed that test year (2002) water loss was 12.6 percent. Decision No. 67166 at 11. Is that excessive? Again, these are subjective determinations subject to a number of considerations. In many cases, water loss between 10 and 15 percent is said to be within acceptable limits. *See e.g.*, Direct Testimony of Lyndon Hammon (Docket No. W-01455A-02-0619) at 4. In the Survey of State Agency Water Loss Reporting Practices: Final Report to the American Water Works Association, January 2002 at 18-19, the author finds that small providers in Arizona are "required to maintain lost and unaccounted-for water at or below 15 percent. Thus, by these standards, PWCo's test year water loss of 12.6 percent was well within acceptable limits.

PWCo recognizes, however, that it operates in an area plagued by chronic water supply shortages. As the Commission recognized in Decision No. 67166 at 11, "water is a precious resource and is in particularly limited supply in the Pine area." In short, every bit of water that can be prudently saved from loss should be, and PWCo has looked at and in some cases already implemented measures to reduce its water loss below 10 percent.

Moreover, it appears that some of these efforts are already proving to be successful. Preliminary analysis of 2004 data shows an annualized water loss under 10 percent.

Finally, consistent with the Commission's directive this Plan only addresses ways to reduce water loss to less than 10% rather than, where it might otherwise be applicable, reasons why such reduction might not be "practical" or "cost effective. *Id.* As a consequence, it will remain to be determined whether measures to further reduce water loss and/or to sustain the current levels of water loss achieved in 2004, would constitute a prudent investment of resources to be recovered from PWCo's customers.

DISCUSSION OF WATER LOSS REDUCTION

System Replacement

Problem: The vast majority of water infrastructure in the PWCo system was built in a piecemeal fashion during the 1950s and 1960s by the Company's predecessor. Maintenance and repair of the system was virtually non-existent. As a result, while operable, the system is subject to line breaks, which result in minor to major water loss events.

Solution: PWCo has already implemented improved leak response and repair procedures. Under this program, PWCo revised its procedures for customer service representatives to follow in the event of a reported leak report. Specifically, in October 2004, customer service representatives received hands-on training. By the end of the course, customer service representatives were trained on a) PWCo history and demographics; b) current rates approved by the Commission; c) current status of PWCo's meter moratorium; d) updated tariff sheets and emergency contact lists; and e) the new call taking, logging and dispatch procedures for leaks. In addition to satisfactory completion of these items, customer service representatives were required to execute an emergency call-out accurately in order to receive a passing result. A detailed copy of the training module and the certificates of completion for all customer service representatives were forwarded to Commission Staff for inspection and review on November 8, 2004. Then, all operations personnel received in-depth training on the newly improved reporting, dispatch and leak investigation procedures. Proper field response to leak dispatches were reviewed and operations personnel were advised that all leak dispatches must be confirmed to the call center immediately upon receipt and a field investigation should follow the dispatch within the shortest time possible. PWCo has also established a 24-hour "back-up" call center number for reporting leaks in the event the customer experiences a delay in connection to the regular emergency line.

To achieve further reductions in water loss, PWCo could undertake a program to replace all of the water mains within its system, some 36 miles of line. Such a program would take approximately 8-10 years to complete.

Water Loss During Main Line Repairs, Leaks and Breaks

Problem: In addition to leaks, water line shutdowns for repair and sanitary flushing techniques are the most frequent causes of known water loss. The original design of the PWCo system did not include an adequate number of isolation valves, therefore, large portions of a service area need to be shutoff and drained to accommodate repairs.

Solution: In order to minimize the amount of water lost during system repairs or improvements, PWCo undertook the installation of additional isolation valves in 2004. Twelve such valves have been installed to date. The installation of additional isolation valves minimizes the amount of water lost during system repairs because the distance of line that must be shutdown, drained, flushed and refilled during the repair process is substantially reduced.

Meter Repair And Replacement Program

Problem: Another common means by which water is lost from a water utility system is through non-functioning, inaccurate or otherwise deficient meters. This problem can be particularly acute in older water systems, such as the one PWCo inherited from its bankrupt predecessor in the mid-1990s. A typical water meter will last between 10-15 years. As mentioned above, most of the water in the PWCo system was built during the 1950s and 1960s. It is believed that approximately 45 percent of PWCo's in-service meters are 15 years or older and could be under-registering consumption, which would contribute to the determined amount of water loss.

Solution: In 2004, PWCo implemented a program to more readily identify, repair and/or replace non-functioning and other deficient or slow reading meters. Under this program, PWCo conducts quarterly reviews, in alternating areas of the system, in order to more rapidly identify inadequate or non-functioning meters. Deficient meters will be replaced allowing the Company to gather more accurate measures of customer consumption, which data is critical to further water loss reduction. During the final quarter of 2004, PWCo identified, replaced or rebuilt 32 non-functioning water meters.

PWCo believes approximately 880 additional meters may require replacement.

Emergency Supply Water

Problem: Water loss, as measured by the difference between the quantity of water produced and the quantity of water consumed by end-users, also results when water is taken from the system for emergency services. For example, the local fire department routinely accesses PWCo's water supply for fire fighting conditions and non-emergency training drills. Historically, this water has not been accounted for, increasing determined water loss.

Solution: PWCo representatives have worked with the Pine-Strawberry Fire Department representatives to establish a monthly reporting mechanism. In this way, the fire department can readily communicate the estimated quantity of gallons it removes from the PWCo system, lowering the amount of unaccounted for water, or water loss.

Theft of Service

Problem: PWCo, like many other water utility service providers, experiences commodity loss due to "Theft of Services". For example, property owners may contribute to water loss by restoring disconnected service to their property without authorization. For example, in 2004, PWCo had 5 known incidents of unauthorized restoration of service involving damage to the meter, valve or water line. PWCo also experienced approximately 15 instances of unauthorized service restoration. In those cases, although the water is produced, treated, delivered and subsequently consumed, a "billable" account is absent and the amount of water delivered is not included in commodity sales calculations.

Solution: To deter unauthorized water use, PWCo could place small, warning tags on all inactive meters. This tag would advise a potential user of the penalties for valve tampering and provide easy-to-follow account establishment directions. In addition, PWCo will continue its long-established procedure of immediate disconnection when unauthorized consumption is discovered.

Data Consistency and Preparation

Problem: When there is a time lag between receipt of data from well readings and customer consumption it makes it more difficult to

determine monthly unaccounted for water. This delays response time to problems that might be leading to unknown water loss.

Solution: Beginning in June 2004, PWCo redesigned its operations schedule and now well readings are obtained during the same 4-day period as customer meter readings. From there, quarterly water loss reports will be prepared.

Periodic Review and Staff Training

Problem: Any utility facing new, increased and/or unique problems, may be staffed by qualified and experienced personnel that are not yet familiar with such problems or the necessary remedial measures. This creates a need for special or enhanced training in new problems and procedures.

Solution: The report discussed above has already proven to be a valuable training tool. PWCo staff periodically review information on water loss incidents, including the cause, where known, and discuss what actions or preparations, could have been taken to avoid the incident or, at least, minimize the water loss. This process further reminds the Company and its personnel of the importance of water and water loss reduction.

Community Leak and Water Loss Reporting

Problem: The community plays a vital role in reducing water loss and rapid reporting of main line leaks. Nevertheless, while some community members report leaks immediately, others seem uninterested in getting involved or simply do not understand the nature or scope of the problem or what they can do to help.

Solution: Community involvement in reporting and repairing line leaks and other water loss events would be enhanced by periodic information bulletins to the Brooke Utilities' e-mail advisory lists. Such bulletins would include water conservation tips and both the regular hours and after-hours contact number to be used to report found or suspected leaks.

CONCLUSION

Water is, as the Commission has noted, a precious resource, no more so than in and around Pine, Arizona. Consequently, unaccounted for water, also known as "water loss", while an unavoidable part of the water utility business, should be kept at the lowest levels possible, given due consideration of all relevant factors including, without limitation, system design, system age and, of course, the ability of the community a water

system serves to pay the costs of capital improvements. In this document, PWCo has outlined steps that have already been taken, and which, it appears, have already reduced PWCo's water loss below prior levels. This document also identifies steps that might be taken in the future to further combat water loss. PWCo looks forward to working with the Commission, its Staff and other interested stakeholders to explore the prudence of these additional measures.

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