DECISION MEMORANDUM

TO:COMMISSIONER HANSEN

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WORKING FILE

FROM:SCOTT WOODBURY

DATE:OCTOBER 31, 1997

RE:CASE NO.  UWI-W-96-6

INVESTIGATION-WATER QUALITY/SERVICE

On November 7, 1996, the Idaho Public Utilities Commission (Commission) initiated Case No. UWI-W-96-6, an investigation of United Water Idaho, Inc. and its ability to provide adequate service and water quality.  The Commission initiated the investigation following its review of testimony from the Company’s customers in United Water Case No. UWI-W-96-3, the complaint records of the Commission’s Consumer Staff, and the Company’s own records furnished to Staff regarding water quality complaints.

United Water serves approximately 55,000 residential, commercial and other classes of customers in the City of Boise and surrounding areas.  The Company sources of water supply consist of the Marden Water Treatment Plant and 62 deep wells.  The combined 1995 capacity of all wells and the treatment plant is approximately 78 million gallons per day.  Testimony in the Company’s rate case reflects that the Company is experiencing problems in a number of its wells with high levels of iron and manganese.  This causes a discoloration of the water.  The problem, distressing to affected customers, is more prevalent in summer periods of high water use when customers pay a 25% higher seasonal price for water.  The Commission has been advised by the Idaho Division of Environmental Quality (DEQ) that iron and manganese in water are regarded as an aesthetic problem, which under federal EPA guidelines poses no health threat.

The Commission is its Order No. 26673 in Case No. UWI-W-96-3 stated:

Based on the public testimony in this hearing, the complaint records of the Commission’s Consumer Staff, and the Company’s own records regarding water quality complaints, the Commission finds it reasonable to initiate a separate docket to investigate United Water and its ability to provide adequate service and water quality.  While the iron and manganese problem is not threatening to health, it certainly is a cause for concern and dissatisfaction for customers.  They should have the assurance that the Company has investigated and implemented all reasonable means of reducing or eliminating the problem.  The proceeding we initiate with this Order will be conducted to provide that assurance to customers.

The Commission’s Staff was directed to file a report with the Commission detailing the nature and extent of the Company’s water quality (iron and manganese) problem, the Company’s efforts  at addressing the problem (technical and customer relations), and alternatives for mitigating or eliminating the problem (including estimated costs).

On February 14, 1997, the Commission Staff filed a status report in Case No. UWI-W-96-6 detailing its preliminary analysis.  On May 21, 1997, the Commission Staff filed its final investigative report (attached).  On August 26, 1997, United Water filed its response (attached).  Staff’s final report and Company response can be summarized as follows:

Staff Investigation—Final Report

As reflected in Staff’s report, 23 of 61 ground water wells of United Water produce water that contain iron and/or manganese that exceed the secondary maximum contaminant levels (SMCLs) listed in the Safe Drinking Water Act (SDWA).  Although secondary contaminants are classified as non-health threatening, the presence of high levels of iron and manganese can result in aesthetic problems including foul odor, poor taste and discoloration.  The secondary maximum contaminant levels are 0.3 milligrams per liter (mg/l) for iron and .05 mg/l for manganese.  The affected wells represent a rated capacity of approximately 31 million gallons per day (MGD) or 35% of the Company’s total rated supply capacity.  Although representing a proportionately large percentage of total rated capacity, Staff notes that the affected wells are relied on for only approximately 1/4 of total waters actually supplied, most of which supply is provided during the summer months when demand is high.

Factors influencing who might receive water of poor quality, Staff contends, include proximity to problem wells, seasonal activity such as spring system flushing, the proximity of customers to other high-quality water supplies, the type of distribution system in the area, and the quantities of water used in the area.  Another critical factor is the presence of iron bacteria.  These naturally occurring bacteria feed primarily on iron that is present in well water or on iron pipe that is present in the distribution system.  The bacteria can form black slime that plug filters and stain clothing and fixtures.  It lives in temperatures between 40 and 60 degrees Fahrenheit and can be controlled with chlorination, (generally large doses of chlorination).  The presence of the bacteria appears to be related to iron and manganese introduced by supply sources.

As reported by Staff, the primary focus of United Water in dealing with water complaints is to reduce the amount of water supplied to the system from problem wells.  The Company also sequesters at each problem well to keep the iron and manganese in solution using a polyphosphate chemical product.  The effectiveness of the chemical is dependent upon concentrations of iron and manganese, water temperature, chlorine levels and customer perception.  In 1996 the Company used over 10,000 gallons (at $6.30/gallon) of the chemical product in its efforts to control iron and manganese.

Other possible solutions to replace existing problem supplies are also being pursued and investigated.  The Company has plans to expand its Marden Street water treatment plant, further investigate the use of aquifer for storage and recovery (ASR), and (most promising) identify aquifers of high water quality and redrill and/or replace existing wells.

United Water’s present water quality expenses exceed $460,000 per year which represents about 2.3% of annual revenue.  Each customer contributes nearly $1.50 bi-monthly on average to pay for aesthetic water quality improvement.  The annual number of water quality complaints have declined from 1994 to 1996 to currently represent about 0.6% of total Company customers.

The Company states that there are four major alternatives available for controlling iron and manganese in ground water.  The treatment and associated costs are as follows:

|  |  |  |
| --- | --- | --- |
| Treatment | Capital  (per MGD) | Operating  (per MGD) |
| 1.  Add sequestering agent  2.  Deepen/redrill  3.  ASR  4.  Green sand filtration | $2,500  $150,000-350,000  $200,000-325,000  $600,000-800,000 | $25.20  $0.00  $62.20  $30.00 |

Green sand filters are described as granular material coated with manganese oxide that provides oxidation-reduction capabilities that remove iron and manganese in a pressure filtration system.  The four alternatives can be separated into two categories for removal of iron and manganese: (1) treat existing supplies through sequestration or filtration or (2) replace existing supplies through deepening/redrilling wells or ASR.  The Company has also displaced/replaced existing supplies previously provided by problem wells by drilling new wells, using water from the water treatment plants and purchasing some supplies.

Staff also investigated and in its Report describes whole house or in-home water treatment alternatives available to customers including mechanical gravity and pressure filters, iron and sulphur traps, ozone treatment, chlorine and charcoal filters and reverse osmosis filters.  Most references indicate that activated carbon filters and reverse osmosis filters are best for resolving taste and odor problems while softners and some form of mechanical pressure or gravity filter are most effective for iron and manganese removal.

Staff discusses its analysis of the Company’s customer complaint process and offers suggestions to improve the manner in which the Company responds to customers who have non-health threatening water quality complaints, including better communication and record systems, providing the customer with better information, and instituting a regular follow-up procedure.

Staff concludes that the Company’s long-term approach to eliminate iron and manganese from the system seems to be the most effective way to guarantee that most aesthetic problems are eliminated.  Although not specifically stated by the Company, Staff notes that the Company’s approach seems to be to replace/modify the largest problem wells serving the most customers for the greatest period of time during the year.  Staff recommends that this approach be continued.  However, Staff also believes that the Company should be prepared to provide the Commission, in the course of recovering these costs, with some stated objective regarding what it hopes to achieve.  The objective should be in terms of SMCLs for iron and manganese, total customer water quality complaints or some other objective method to measure effect.  Staff also contends that the Company should make water quality activity information available to customers including type of activity, timing of expected improvement and information regarding in-home treatment alternatives.

Regarding the area of customer service and complaint records, Staff recommends that the Company take full advantage of its new computer system by automating the retrieval of customer account information by customer service employees for recording customer complaints.  This, Staff contends, will create a much more accurate complaint data base, which initially should be used for improved follow-up in situations where the customer’s problem is not easily and readily resolved.  Secondarily, the data base improvement should be used for geographic analysis of water quality complaints.

Company Response

United Water contends that where it has been unable to supply customers with water that meets the secondary standards, its objective is to treat the water sufficiently to mask the effects of the elevated iron and manganese content.  This has typically, it states, been in the form of sequestering the iron and manganese that exceeds the secondary standard.  The Company notes that the goals of supplying an economical supply of water and meeting the secondary standards can prove to be competing objectives.  The maximum average daily usage of approximately 1500 gallons per United Water customer more rather than the typical 300 gallons per customer, which is the national average, forces the utilization of aesthetically marginal sources of supply and forces a treatment requirement of very high volumes of water due to irrigation load.

The Company’s primary goal is to provide customers with an economical supply of water which meets all primary standards.  The Company’s secondary goal is to supply customers with aesthetically pleasing water by meeting the secondary standard for iron, manganese, taste, and odor.  The Company notes that simply meeting the secondary standard for iron and manganese does not assure that all water delivered will meet the aesthetically acceptable standard.  Delivery of water that is near the 0.3 parts per million for iron and 0.05 parts per million for manganese can and often will result in water that at times exhibits staining and discoloration properties.

The Company in its Response describes the methods that it utilizes for achieving improvement and secondary standards for iron and manganese or achieving aesthetically acceptable water from well sources by treatment.  The Company also describes specific actions to address problem areas and wells within its system.  The Company further describes steps that it is taking to improve the manner in which it responds to customer complaints.  The Company is committed to providing its customers with a sure supply of high quality water that meets all health-related standards and, when feasible, meets aesthetic criteria for taste, odor and appearance.  It also states that it is committed to educating its customers and employees about these issues, as well as its goals and efforts to meet their water quality needs.

Commission Decision

As reflected in the Commission’s initial Notice of Investigation and Procedure,  “following receipt and consideration of the report, the Commission will issue an additional Notice establishing further procedure and scheduling, which will include a forum for public participation.”  What procedure does the Commission wish to adopt?

Scott Woodbury

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