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# COMMISSION REGULATION OF SMALL WATER UTILITIES: MERGERS AND ACQUISITIONS

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## EXECUTIVE SUMMARY

This report is the third in a series of NRRI monographs on the problems associated with regulating small, investor-owned water utilities. The purpose of this report, like the two preceding reports, is to help state commissions resolve some of the problems associated with small water utilities under their jurisdiction.

This report builds on the two previous projects by focusing on the factors that encourage and discourage the acquisition of small, financially troubled water utilities. An important aspect of this study was an examination of these incentives and disincentives and the role of state commissions in creating them. The regulatory issues linked with water utility acquisition include rate level impacts; rate structure redesign; the treatment of acquisition costs in excess of depreciated original cost; and addressing the concerns of past and present owners of the acquired utility, and affected units of local government.

While the actual number of small water utility acquisitions (both voluntary and forced) has not been large, the transfer of ownership of a water utility consumes regulatory time, energy, and resources. Thus, the acquisition process should be appraised in terms of regulatory standards or criteria.

In the case of substantial contributed capital and/or where the purchase price exceeds the net book value of assets, regulatory treatment of the excess acquisition cost can be an important factor in determining whether the acquisition is financially attractive to the potential acquirer. State commissions generally consider only two options in treating the excess acquisition cost, i.e., complete rate base inclusion and amortization versus complete disallowance. However, there are several regulatory options that lie between these two extreme treatments of excess acquisition costs; these options vary in their effect on present investors, and present and future ratepayers. This report recommends that state commissions consider numerous options in their deliberations regarding the treatment of the acquisition price.

The survey of state commissions indicates that a substantial majority of investor-owned water utilities have annual revenues of less than $15,000. Many of these small water firms are characterized by inadequate capital, poor water service, poor water quality, deficient maintenance, operating losses, and numerous customer complaints. The majority of state commissions surveyed do not formally document the existence of financially troubled water utilities under their jurisdiction. This report recommends that state commissions systematically document and monitor financially troubled water utilities.

The survey also indicates that, in the majority of the private acquisitions, state commissions did not explore any alternatives to the private merger. This report recommends that state commissions thoroughly explore alternatives to the acquisition of a small, financially troubled water utility by another privately owned utility.

The examination and experimental application of the widely employed failure prediction model known as the Zeta model clearly indicates that substantial modifications of existing failure prediction models are necessary prior to any successful application to water utilities. In brief, investor-owned water utilities have different operating and financial characteristics than do manufacturing and retailing firms. An alternative early warning technique is peer analysis. This technique

involves comparisons of operating and financial ratios. This report recommends that state commissions adopt the peer comparison technique as a monitoring device for small water utilities.

Twelve recent acquisitions were examined in which the acquiring firm was an investor-owned utility. Nearly all of the acquisitions were motivated by the acquiring utility wishing to increase its customer base. Regulatory policy played an important role in a few of the private acquisitions. In the four cases in which the acquisition price exceeded the depreciated original cost of the acquired plant and where the excess acquisition cost was permitted in the rate base of the acquirer, the acquisition probably would not have occurred without the favorable rate base treatment in three of the cases. This report recommends that state commissions adopt and maintain a flexible policy regarding the treatment of excess acquisition costs.

The survey indicates that public acquisitions are occurring more frequently than private acquisitions. The reasons for this trend include the close geographical proximity of the acquired utility and the public entity, the natural absorption of small water utilities by municipal growth, the tendency for municipalities and other public agencies to pay higher acquisition prices than investor-owned utilities, and the easier facilitation of public (as compared to private) acquisition. This report recommends that states consider municipal ownership as a solution to the problems associated with small, investor-owned water utilities.

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# FOREWORD

Annually the Institute brings out at least one major research report in the field of water utility regulation. This study is our most recent product. It is the third of our studies done to assist state commissions in resolving some of the problems long associated with jurisdictional small water utilities.

The study is partly empirical, employs some financial modeling, examines some case studies, and (rare for NRRI) includes a series of recommendations. We trust you will find it useful.

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# CHAPTER 1

## INTRODUCTION

This report is the third in a series of NRRI monographs on the problems associated with regulating small, investor-owned water utilities. Its primary purpose, like the two preceding reports, is to help state regulatory commissions regulate small water utilities and improve the capability of regulatory commissions to cope with the problems of these utilities.

The first NRRI report was entitled Commission Regulation of Small Water Utilities: Some Issues and Solutions (Lawton 1983). The objectives of this first report were to identify the problems confronted by small water utilities and to identify the policies and actions pursued by state regulatory commissions to ameliorate these problems. It was found that both traditional (e.g., stipulated proceedings, simplified procedures) and nontraditional solutions (e.g., deregulation, routinization of rate case applications) were being employed. The nontraditional solutions were based on a recognition that the fundamental problem of small water utilities is that they are not financially viable, and that this problem is not the result of commission action nor can it be easily solved by traditional rate base regulation.

The second NRRI report (1984) was entitled Commission Regulation of Small Water Utilities: Outside Resources and Their Effective Uses (Davis et al. 1984). The objective of this second report was to identify which public agencies (other than regulatory) and private organizations were concerned with rural and urban water provision; the report analyzed the impact of these organizations on small water utilities. The inventory of public and private organizations involved with water provision indicated that rate regulation is only one of the problems of small water utilities and that state regulatory commissions are only one group of numerous agencies concerned with how small water systems function.

Two other documents concerned with the problems of small water companies are particular worthy of mention. The first is the NARUC Water Committee Report (1985), which listed guidelines for incentives to promote the acquisition of small water companies. The second is the

National Association of Water Companies (NAWC) Report (1985), which recommended solutions for the problems of small water companies. Both reports complement the NRRI studies on small water utilities and provide a foundation for this third report.

New federal legislation may impose an additional burden on small water utilities. The new 5-year Safe Drinking Water Act (signed into law in June 1986) will impose more stringent requirements on water utilities.[1] The most likely effect of the amended legislation is substantial capital investment with associated increases in treatment costs and water rates.

The new legislation creates concern as to how small water utilities will be affected and whether these small water utilities have the financial resources to comply with the new treatment standards.

The new tax reform legislation also has implications for small water utilities. Water utilities no longer can treat contributions in aid of construction as contributions to the capital of the utility, but will have to treat the contributions as income, thus increasing taxes paid. The legislation will affect only contributions received after December 31, 1986.[2]

## Research Scope

This report builds upon the two previous projects by analyzing the incentives that encourage and the disincentives that discourage the acquisition of small financially troubled water utilities.

Since this report is written from a regulatory perspective, the primary audience is composed of state commissioners and their water utility regulation staff. It is anticipated that this report will be useful to those regulators who either have been involved or who are planning to be involved in acquisitions of small, financially nonviable water utilities.

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[1] Safe Drinking Water Amendments of 1986, PL 99-339.

[2] Tax Reform Act of 1986, PL 99-514.

## Problem Statement

The problems experienced by small, financially troubled water utilities flow in large part from their small scale of operations. The economies of scale that benefit the larger water utilities are not generally available to the smaller systems. It has been argued that consumers would benefit if small water utilities were acquired by larger water utilities. The anticipated benefits include improved water service; improved water quality; financial stability; and economies of scale in source of supply, transmission, treatment, and distribution. The regulatory issues linked with acquisition include potential rate increases; redesign of rate structures; the treatment of acquisition costs in excess of depreciated original cost; the treatment of contributed equity capital; and the concerns of past and present owners of the acquired utility, of present and future consumers of the acquired utility, of present and future consumers of the acquiring utility, and of affected local units of government.

One policy option considered by state commissions when a small water utility appears to be financially nonviable is inducing a large water utility to acquire the small water company. While the actual number of small water utility acquisitions (either voluntary or induced) has not been large, the transfer of ownership of a water utility consumes time and resources. There is no publicly available report that state commissions can employ to identify and assess the merits and demerits of specific acquisitions.

## The Research Approach

The research approach is designed to identify the incentives and disincentives that encourage or discourage the sale of small water utilities to other parties. A series of surveys was used to identify the actual incentives and disincentives that were used in actual instances before state commissions. The surveys included a mail survey of state commission staffs, a telephone survey of representatives of large investor-owned water utilities that have recently acquired small water utilities, a telephone survey of commission staffs in those states

in which either private or public acquisitions have recently taken place, and case studies of investor-owned utility acquisitions of small investor-owned utilities.

The telephone surveys assisted in identifying the problems encountered in acquisitions of small, financially troubled water utilities, in identifying regulatory participation in acquisitions and its importance in the facilitation of acquisitions, and in identifying the various mechanisms employed in acquisitions. The case studies provided additional detailed data that complement the information obtained in the mail and telephone surveys.

## Regulatory Techniques

There is a wide variety of regulatory techniques used in other utility sectors that may be applicable to the problems of the financially distressed small water utility. There are regulatory techniques that can provide incentives for large water utilities to purchase small water utilities. Similarly, there are regulatory techniques that can provide disincentives for water utilities purchasing other water utilities.

This discussion review focuses on the acquisition of small, privately owned water utilities by large privately owned water utilities, since most state regulatory commissions have jurisdiction primarily over investor-owned water firms. However, some of the analysis and discussion has relevance for both the acquisition of small, publicly owned water utilities by investor-owned water utilities as well as the acquisition of small, investor-owned water utilities by municipalities. In the acquisition cases involving public agencies or municipalities, the acquisition incentives and disincentives tend to differ from those in acquisitions involving only investor-owned firms.

### Alternative Treatments of Excess Acquisition Cost

The use of the Uniform System of Accounts requires that public utilities record their assets on the basis of first original cost. This applies both to plant that has been constructed and to plant that has

been acquired. In brief, if property is purchased from another public utility, traditionally it is recorded on the basis of depreciated original cost, even though the acquiring firm may have paid more (or less) than the net book value of assets. The difference between depreciated original cost and a higher acquisition price has been either included in rate base (and amortized above the line over some specific period), excluded from rate base (but amortized above the line), or completely disallowed for rate-making purposes.

The traditional depreciated-original-cost approach can provide a disincentive to potential purchasers of small financially distressed water utilities, particularly if the small water utilities have substantial amounts of plant funded by contributed capital, or contributions in aid of construction. That is, an acquisition problem arises when the small water utility has a minimal or zero rate base. In the water industry, many small water utilities have capital structures containing little net capital investment since contributions in aid of construction have been used to finance a substantial portion of water plant. An example of this is water consumers in a residential development essentially paying for the water plant through purchase of the lot.

Given the existence of substantial contributed capital, the regulatory treatment of the purchase price is an important factor in determining whether the takeover is financially attractive to the potential acquirer. That is, incentives and disincentives can exist in the manner in which regulatory commissions treat the acquisition cost, particularly if the acquisition cost exceeds depreciated original cost or net book value of assets. In the cases in which the acquisition cost is less than depreciated original cost, the traditional original cost approach in itself provides an acquisition incentive. That is, the increment to the rate base of the acquiring utility may exceed the acquisition cost.

The excess acquisition cost in some cases can be attributed to substantial amounts of contributed capital. In other cases, the excess acquisition cost is due to current market values. Given that consumers paid for the water plant in the purchase price of developed lots and houses, a rational expectation on their part is that their water rates should not exceed costs of operation (Kahn 1978). That is, rate

increases exceeding cost increases permits double recovery of capital costs. Thus, there is a dilemma. To allow double recovery of capital costs via amortization and/or rate base inclusion of the excess acquisition cost can be perceived as inequitable. However, some double recovery of costs (preferably over a larger customer base) may be necessary to induce a larger water system to purchase a smaller, financially nonviable system. In essence, disallowance of the excess acquisition cost does prevent water consumers from paying capital costs twice; at the same time, disallowance or rate base exclusion of the excess acquisition costs may eliminate an incentive for the purchase of the small financially troubled water system.

## Regulatory Options for Rate Base Treatment

The problems in the regulatory treatment of the acquisition price in excess of depreciated original cost are similar to those for excess capacity, cost overruns, plant abandonments, and plant cancellations. There are two essential issues. The first is the issue of the extent to which return <u>of</u> capital (i.e., amortization or recovery of the excess cost of acquisition) is allowed. The second is the issue of the extent to which return <u>on</u> capital (i.e., rate base inclusion of the excess acquisition cost) is allowed. Regulators have several options (more than simply rate base inclusion or rate base exclusion) that vary in effect on present investors, present consumers, and future ratepayers. These options are briefly discussed below.

<u>Option A</u>: <u>Full amortization of the excess acquisition cost and inclusion of the unamortized balance in the rate base</u>.

This option provides maximum benefits to the stockholders of the acquiring firm and imposes maximum costs on the water consumers. The length of the amortization period determines both the relative shift in benefits from consumers to investors and the relative shift in costs from present to future consumers. In general, shorter amortization periods tend to benefit investors relative to consumers; longer amortization periods tend to benefit consumers relative to investors. Even in the cases where the excess acquisition cost is excluded from the

rate base, the length of the amortization period affects the distribution of benefits and costs between shareholders and consumers. For example, shorter amortization periods mean that the foregone or sacrificed investor return on capital is smaller. Shorter amortization periods also mean a lesser redistribution of the cost burden from present ratepayers to future ratepayers; in contrast, longer amortization periods increase the redistribution of costs from present to future consumers.

Option B: Various mixes of rate base inclusion and amortization of the excess acquisition cost.

For example, 50 percent of the excess acquisition cost could be included in the rate base (and amortized); and 50 percent of the excess acquisition cost is excluded from the rate base (but amortized as an expense in cost of service). In general, this option provides a lesser benefit to shareholders and imposes a lesser cost on consumers than Option A. Like Option A, the length of the amortization period determines the relative distribution of benefits between investors and consumers and the relative distribution of costs between present and future consumers.

Option C: Full amortization of the excess acquisition cost coupled with rate base exclusion of the unamortized balance.

In comparison with Option B, this option provides a lesser benefit to investors and imposes a lesser cost on consumers. As in prior options, the length of amortization period determines the relative cost burden between present and future ratepayers.

Option D: Partial amortization of the excess acquisition cost coupled with rate base exclusion.

Relative to Option C, this option provides a lesser benefit to investors and imposes a lesser cost on consumers. Like the other options, the length of the amortization period affects the relative cost burdens imposed on present and future consumers.

Option E: Treatment of the excess acquisition cost as a current expense (thus affecting current revenue requirements only).

This option involves no intergenerational transfer of income between present and future ratepayers, that is, the costs are imposed on present consumers.

Option F: No amortization of the excess acquisition cost and rate base exclusion but allowance of a higher than market-justified rate of return.

The relative impact on investors and consumers from this option is difficult to ascertain unless one has data on the magnitude of the rate-of-return premium. However, one can conjecture that this option, relative to Options D and E, provides a lesser benefit to investors and imposes a lesser cost on consumers.

Option G: Inclusion of the excess acquisition cost in the rate base coupled with delayed recovery of capital (similar to the phase-in schemes applied to high-cost electricity plant).

Compared to the other options, it is difficult to generalize regarding the distributional impact of this option on investors and consumers; however, present consumers tend to benefit at the expense of future consumers.

Option H: No amortization of the excess acquisition cost and rate base exclusion (complete disallowance).

This option provides the least benefits to shareholders and imposes no additional costs on consumers, at least in the short run. If the acquisition is deterred by this regulatory approach, the consumers of the failing water system may bear substantial costs in the long run.

Obviously, the potential purchaser of a small, financially troubled water utility may be influenced by whether regulators permit full amortization and inclusion in the rate base versus no amortization and rate base exclusion of the purchase price in excess of depreciated original cost.

Some argue that regulators must provide adequate incentives to induce financially healthy water utilities to acquire financially troubled water systems (Cawley 1984; Holmes 1984; and Limbach 1984). They suggest that the entire purchase price of the acquired system be allowed in the rate base of the acquiring firm rather than the typically lesser amount of depreciated original cost. That is, they advocate an acquisition cost adjustment to rate base equal to the premium payment in excess of depreciated original cost of plant. In an accounting context, the acquisition cost adjustment involves the conversion of contributions in aid of construction to other paid-in capital. It appears that some

regulatory commissions primarily consider only two options in treating the excess acquisition cost, that is, rate base inclusion and full amortization (Option A) or complete disallowance (Option H). The discussion above clearly indicates that there are several regulatory options that lie between those two extreme treatments of excess acquisition costs.

## The Single Tariff Pricing Incentive

Limbach (1984) argues that single tariff pricing is an inseparable complement to the acquisition cost adjustment incentive. Single tariff pricing (STP) or wide area pricing permits the acquiring firm to charge the same water rate in the acquired service area as it has been charging in its original service area. STP is a regulatory technique allowing capital improvement costs and acquisition costs to be spread over a larger service area and thus spread over a larger customer base.

STP can be viewed as a facilitator of acquisitions. For example, small systems frequently have antiquated facilities (involving substantial deferred maintenance) requiring immediate capital improvements. Unless such systems can be supplied from existing larger systems and the cost of upgrading and renovation spread over a larger customer base, financial assistance may not be feasible. Combined with rate base inclusion of the acquisition cost adjustment and contributed capital, STP can result in a double recovery of capital costs for the acquired firm; however, the second recovery of plant costs involves a much larger customer base than the first recovery. Thus, proponents of STP argue that the double recovery impact on the small group of customers in the acquired system is minimized.

Although facilitating the takeover of small, financially troubled water utilities, STP is a form of cross subsidization that violates principles of cost causation (Hanke 1981). STP essentially averages the cost of service over a larger service area thus resulting in customers in high-density, low-cost areas often subsidizing customers in low-density, high-cost areas. More specifically, consumers in the original service area of the acquiring water utility subsidize consumers of the newly acquired system. Price signals to different users are distorted

causing both wasteful (excessive) usage and excessive conservation. It is important that regulators evaluate the magnitude of the cross subsidization and price distortion prior to approving STP or any variation thereof. STP represents a tradeoff between reducing the regulatory problems associated with small water systems and increasing cross subsidization between groups of consumers.

## The Operating Ratio Alternative

The use of operating ratios in rate setting can be viewed as a regulatory device that may postpone the necessity of a takeover or possibly induce an acquisition when the excess acquisition cost is excluded from the rate base. Stevie (1981) advocates the use of the operating ratio concept in cases where the water utility has little or no rate base (e.g., capital costs have been funded by development lot purchases). With little or no capital investment, the traditional revenue requirement approach may not adequately compensate the original owner(s) for incurring the risks associated in covering the relatively large annual operating costs. That is, the high operating ratio and narrow return margin of water utilities having little or no rate base indicates that their return margin (the complement of the operating ratio; the difference between expenses and revenues) is highly vulnerable in the context of revenue erosion and increasing costs, or both. In contrast, the computation of revenues on an operating ratio basis not only compensates for the specific risk of revenue shortfall but also may induce potential acquirers to view a particular acquisition more favorably.

The operating ratio technique (which has traditionally been employed in the regulation of motor carriers) is not advocated as a means of providing an adequate return on rate base, but is instead seen as a means of providing a sufficient margin of revenues in excess of costs as insurance against revenue/cost instability. The use of the operating ratio implies that capital investment or rate base is not very important in the determination of required revenues. Obviously, there are several difficulties in calculating required revenues for a small water utility. For example, one problem is the multiple definitions of

the operating ratio. One must select between the ratio of expenses (excluding taxes and rate of return on investment) to total revenues, the ratio of expenses (including taxes but excluding rate of return) to total revenues, and the ratio of expenses (including taxes and rate of return) to total revenues. An equally important regulatory determination is the permitted or allowed expense/revenue ratio, e.g., 92 percent (return margin of 8 percent), 94 percent (return margin of 6 percent), or 96 percent (return margin of 4 percent). The use of the operating ratio as a regulatory device obviously requires that the operating expenses of the water utility be closely monitored by regulators.

## Other Alternatives

An alternative to the financial takeover of small water utilities is central management services provided by larger water utilities (Stump 1986). For example, both investor-owned and publicly owned firms are increasingly providing management and other services to small water utilities on a contractual basis. The device of contracted management services can be viewed as a cost-effective alternative to the financial takeover of small water utilities. That is, contracted management services can provide the efficiencies and associated cost savings that lessen the necessity of large water utilities acquiring smaller water utilities.

Another alternative to the complete financial takeover of small water utilities is privatization (Doctor 1986). Privatization involves private sector financing, ownership, construction, and operation of what otherwise would be publicly owned facilities. Privatization can be distinguished from the traditional investor-owned operation of water systems in that services from the private facility are generally delivered to the public agency rather than to individual customers. For example, the privately owned firm may acquire or construct source of supply and treatment facilities and sell the treated water to the publicly owned system that owns and maintains the distribution system. The investor-owned firm realizes certain tax benefits and efficiencies in the construction and operation of the treatment facility; the cost

savings are then shared with the public agency. Privatization generally does not involve the acquisition of the water utility.

## A Preview

This report has five remaining chapters. Chapter 2 discusses the NRRI survey of state commissions regarding the acquisition of small water utilities. Chapter 3 focuses on the regulatory task of the early identification of financially troubled water utilities. Chapter 4 discusses recent acquisitions of small, investor-owned water utilities by other investor-owned utilities. Chapter 5 focuses on recent acquisitions of financially troubled water utilities by municipalities and other public agencies. The report ends with conclusions and policy recommendations in chapter 6.

The survey of state commissions discussed in chapter 2 indicates that a substantial majority of investor-owned water utilities has annual revenues of less than $15,000. Many of these small water firms are characterized by inadequate capital, poor water service, insufficient maintenance, operating losses, and numerous customer complaints to the regulatory agency. In this context, the majority of states do not regularly document the existence of financially troubled water utilities. Between 1982 and 1986, approximately 450 investor-owned utilities were either dissolved or acquired. Over 60 percent of these cases involved either an acquisition by an investor-owned water utility or by a municipality. In general, the survey provides extensive data on acquisitions of small water utilities and regulatory involvement in the acquisitions.

The focus in chapter 3 is on the early identification of financially troubled water utilities. Examined is the widely employed failure prediction model known as the Zeta model. The Zeta model was applied on an experimental basis to several water utilities. The results clearly indicate that modifications of existing failure prediction models are necessary prior to successful application to water utilities. For example, investor-owned water utilities have different operating and financial characteristics than do manufacturing and retail firms. Also examined is an early warning technique known as peer

analysis, which is used to predict small bank failures; this technique involves comparisons of operating and financial ratios. The key to the successful application of peer comparisons is the development of the relevant operating and financial ratios.

Chapter 4 focuses on recent acquisitions in which the acquiring firm was an investor-owned water utility. Twelve acquisitions were examined. Eleven of the acquired water utilities were small, financially troubled firms. Eleven of the acquisitions were primarily motivated by the acquiring utility desiring to increase its customer base. For the acquired systems, there were multiple motives including the objective of exiting the water service business and the reluctance to make necessary (and substantial) capital improvements to the water system. Financial and regulatory factors facilitated some of the acquisitions. For example, there is evidence that, in three of the four cases in which the acquisition price exceeded the depreciated original cost of the acquired plant and in which the excess acquisition cost was included in the rate base of the acquirer, the acquisition would not have taken place without the favorable rate base treatment.

The focus in chapter 5 is on acquisitions in which the acquirer was either a municipality or a public agency. The survey clearly indicates that public acquisitions occur more frequently than private acquisitions. There are multiple reasons for the increase in the acquisition of small water utilities by public entities. One reason is the close geographical proximity of the public agency and the historical trend of absorption by municipal growth. In some states, municipalities and public agencies can pay higher acquisition prices than investor-owned utilities; in addition, the public entities tend to charge lower water rates. Thus, both the seller and its consumers can benefit financially from the public acquisition. Public acquisitions are also easier to facilitate than private acquisitions. Finally, public acquisition removes the acquired system (and its problems) from the jurisdiction of the state regulatory commission in the majority of states.

CHAPTER 2

# NRRI SURVEY ON MERGERS AND ACQUISITIONS OF SMALL WATER UTILITIES

The NRRI in the spring of 1986 undertook a survey of state public utility commissions to elicit their experiences and views on acquisitions and mergers of small water utilities. The survey was an attempt to generate data on acquisitions as well as identify elements of merger agreements that contributed to their success. The results of the survey are reported in this chapter. Because mergers and acquisitions are quite similar, we will use the terms interchangeably throughout this report. (See appendix A for the survey instrument.)

## Summary of Results

The commissions reported that approximately 60 percent of the water utilities and approximately half of the combined water/sewer utilities under their jurisdictions had annual revenues of less than $15,000. Respondents cited inadequate capital as the most important element in defining troubled utilities and the most frequent problem faced by the commissions. Operating losses, poor management, and poor water quality were other important elements. Many commissions do not regularly document the existence of troubled water utilities. The remaining commissions keep track of these utilities with one or more methods such as an annual listing, sorting of annual reports, an early warning system, plant inspections, periodic investigations, and monitoring of customer complaints. Most of the commissions have formal authority to encourage and/or force compliance of their orders, but very few commissions, even those with jurisdiction over large numbers of utilities, have authority to take stronger action such as power to force receivership or to condemn. Between 1982 and 1986, five hundred water utilities ceased to be regulated by the commissions. Almost one-half of these utilities

underwent public mergers while another one-third were merged with private corporations.

## Administration of the Survey

The NRRI survey on the acquisition of small, troubled water utilities was intended to analyze actual commission experience in this area. Commissions were asked to evaluate the use of acquisitions as a means of solving problems of small water utilities and to identify elements of merger agreements necessary for success.

Five states do not regulate water utilities and were not included in the survey. The survey was sent to forty-five state utility commissions in April 1986. A second mailing and follow-up telephone calls were made. Of the forty-five state utility commissions surveyed, thirty-nine completed the survey and two provided general comments on water utility takeovers. Four commissions did not respond.

## Number of Investor-Owned Water Utilities

The majority of regulated water utilities are very small. Table 2-1 details the number of water utilities reported by state and their annual revenues.

The distribution of regulated utilities by state was essentially bimodal. Staff members in New York, Arizona, North Carolina, and California each reported a total of several hundred investor-owned water utilities. The remainder reported that they regulated fewer than one hundred water utilities. Eleven commissions regulate fewer than fifteen water utilities.

The statistics reported by Florida, Louisiana, Pennsylvania, and New York were not included in the listing of utilities by annual revenue categories, but each of these commissions has jurisdiction over 100 or more investor-owned water and/or sewer utilities. For example, Florida estimated that the commission has jurisdiction over approximately 320 investor-owned water and sewer utilities of which approximately 210 have revenues less than $50,000.

TABLE 2-1

## INVESTOR-OWNED WATER UTILITIES UNDER THE JURISDICTION OF STATE COMMISSIONS, 1986

| State Commission | More than $250,001 | $100,001-$250,000 | $40,001-$100,000 | $15,001-$40,000 | Less than $15,000 | Total |
|---|---|---|---|---|---|---|
| Alabama | 0 | 0 | 3 | 10 | 2 | 15 |
| Alaska | 0 | 3 | 3 | 2 | 6 | 14 |
| Arizona | 18 | 30 | 46 | 70 | 199 | 363 |
| Arkansas | 2 | 1 | 1 | 1 | 2 | 7 |
| California | 39 | 23 | 36 | 46 | 125 | 269 |
| Colorado | 1 | 1 | 2 | 1 | 5 | 10 |
| Connecticut | 18 | 5 | 14 | 23 | 29 | 89 |
| Delaware | 4 | 2 | 1 | 2 | 5 | 14 |
| Florida[1] | N.A. | N.A. | N.A. | N.A. | N.A. | 320 |
| Hawaii | 2 | 3 | 0 | 0 | 0 | 5 |
| Idaho | 4 | 4 | 1 | 1 | 12 | 22 |
| Illinois | 8 | 6 | 14 | 15 | 12 | 55 |
| Iowa | 3 | 0 | 0 | 0 | 0 | 3 |
| Kansas | 2 | 0 | 0 | 2 | 3 | 7[2] |
| Kentucky | 4 | 4 | 4 | 4 | 17 | 33 |
| Louisiana[3] | N.A. | N.A. | N.A. | N.A. | N.A. | 133 |
| Maine | 8 | 7 | 5 | 4 | 4 | 28 |
| Maryland | 1 | 2 | 2 | 8 | 16 | 29 |
| Massachusetts | 11 | 2 | 2 | 4 | 28 | 47 |
| Michigan | 1 | 0 | 0 | 0 | 0 | 1 |
| Minnesota | 3 | 12 | 29 | 20 | 17 | 81 |
| Missouri | 10 | 3 | 5 | 12 | 44 | 74 |
| Montana | 3 | 3 | 1 | 3 | 11 | 21 |
| Nevada | 1 | 5 | 7 | 4 | 2 | 19 |
| New Jersey | 17 | 12 | 15 | 14 | 15 | 73 |
| New Mexico | 11 | 6 | 4 | 5 | 15 | 41 |
| New York[4] | 15 | N.A. | 37 | N.A. | 403 | 455 |
| North Carolina | 6 | 9 | 15 | 21 | 252 | 303 |
| Ohio[5] | 3 | 7 | 5 | 4 | 5 | 29 |
| Oklahoma | 0 | 2 | 5 | 3 | 23 | 33 |
| Pennsylvania[6] | N.A. | N.A. | N.A. | N.A. | N.A. | 303 |
| Rhode Island | 2 | 0 | 0 | 1 | 0 | 3 |
| South Carolina | 5 | 1 | 4 | 9 | 39 | 58 |
| Tennessee | 1 | 1 | 1 | 3 | 1 | 7 |
| Utah | 1 | 1 | 2 | 4 | 9 | 17 |
| Vermont | 0 | 1 | 3 | 6 | 56 | 66 |
| Virginia | 5 | 4 | 9 | 23 | 26 | 67 |
| Wisconsin | 2 | 1 | 1 | 1 | 7 | 12 |
| Wyoming | 1 | 1 | 1 | 4 | 6 | 13 |
| Total | 212 | 162 | 278 | 330 | 1,396 | 3,139[7] |

Source: 1986 NRRI Commission Water Survey

N.A. = Data not available.

N = 39

[1]320 investor-owned water utilities subject to commission jurisdiction; records are not set up to enable commission to respond to question.

[2]Does not include 183 water districts and associations (public corporations).

[3]133 investor-owned water utilities subject to commission jurisdiction; records are not set up to enable commission to respond to question.

[4]Water utilities are classified by annual revenues of more than $100,001, $15,001-$100,000, and less than $15,000.

[5]Total number of utilities exceeds breakdown because same companies do not file reports.

[6]303 investor-owned water utilities subject to commission jurisdiction; data not available for individual categories.

[7]Column total. Row total differs because some states were unable to provide data for specific revenue size.

The number of combined water/sewer utilities reported was substantially lower than the number of water utilities. Table 2-2 lists the number of combined water/sewer utilities by annual revenue categories. Again, the largest number of combined water/sewer utilities reported were those with less than $15,000 annual revenues. Of the 307 total utilities reported, 42 percent or 128 fell into this lowest category.

South Carolina and North Carolina had the highest number of combined water/sewer utilities. The majority of the commissions that reported combined water and sewer utilities regulated fifteen or fewer utilities of this type.

## Elements that Define a Troubled Water Utility

Respondents were asked to rank the frequency with which their commissions were faced with elements that might define a troubled water utility and then express their opinion on the importance of each element. Since the question of "importance" goes to the professional judgment of commission staff as to the weights to be accorded the different elements, the results on importance are of more value in defining the problems of small water utilities than the results on frequency. Ten categories were provided for respondents; these are shown in table 2-3. Respondents were asked to rank the elements from most important (1) to least important (10). Usable responses on frequencies and importance of elements of troubled water utilities were received from thirty-three states. Table 2-3 shows how respondents ranked the frequency of elements faced by the commissions; table 2-4 shows the rankings of importance for each element.

Counting the number of "most important" responses for each element, inadequate capital was cited most often as being the most frequent problem and the most important element in defining a troubled water utility. Customer complaints to the commission was ranked second in frequency but was considered to be only of minor importance. One respondent suggested that customer complaints, while a problem, are not very important in identifying problems for the commission because the commission tended to know how the utility company was performing prior

TABLE 2-2

INVESTOR-OWNED COMBINED WATER AND SEWER UTILITIES
UNDER THE JURISDICTION OF STATE COMMISSIONS, 1986

| State Commission | More than $250,001 | $100,001-$250,000 | $40,001-$100,000 | $15,001-$40,000 | Less than $15,000 | Total[4] |
|---|---|---|---|---|---|---|
| Alabama | 0 | 0 | 0 | 0 | 0 | 0 |
| Alaska | 1 | 0 | 0 | 0 | 0 | 1 |
| Arizona | 11 | 2 | 1 | 0 | 8 | 22 |
| Arkansas | 1 | 0 | 1 | 1 | 0 | 3 |
| California | 1 | 1 | 2 | 1 | 9 | 14 |
| Colorado | 0 | 0 | 0 | 0 | 0 | 0 |
| Connecticut | 2 | 0 | 0 | 0 | 0 | 2 |
| Delaware | 0 | 0 | 0 | 0 | 0 | 0 |
| Florida[1] | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| Hawaii | 1 | 2 | 0 | 0 | 0 | 3 |
| Idaho | 0 | 0 | 0 | 0 | 0 | 0 |
| Illinois | 11 | 5 | 5 | 5 | 4 | 30 |
| Iowa | 0 | 0 | 0 | 0 | 0 | 0 |
| Kansas | 0 | 0 | 0 | 0 | 0 | 0 |
| Kentucky | 1 | 0 | 0 | 3 | 2 | 6 |
| Louisiana[2] | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| Maine | 0 | 0 | 0 | 0 | 0 | |
| Maryland | 2 | 2 | 5 | 1 | 2 | 12 |
| Massachusetts | 0 | 0 | 0 | 0 | 0 | 0 |
| Michigan | 0 | 0 | 0 | 0 | 0 | 0 |
| Minnesota | 0 | 0 | 0 | 0 | 0 | 0 |
| Missouri | 1 | 1 | 2 | 6 | 14 | 24 |
| Montana | 0 | 0 | 0 | 0 | 0 | 0 |
| Nevada | 1 | 1 | 1 | 1 | 0 | 4 |
| New Jersey | 0 | 0 | 0 | 0 | 0 | 0 |
| New Mexico | 0 | 0 | 0 | 0 | 0 | 0 |
| New York | 0 | 0 | 0 | 0 | 0 | 0 |
| North Carolina | 9 | 6 | 13 | 11 | 30 | 69 |
| Ohio[3] | 2 | 1 | 1 | 0 | 1 | 7 |
| Oklahoma | 0 | 0 | 0 | 0 | 0 | 0 |
| Pennsylvania | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| Rhode Island | 0 | 0 | 0 | 0 | 0 | 0 |
| South Carolina | 7 | 6 | 15 | 16 | 55 | 99 |
| Tennessee | 0 | 0 | 0 | 1 | 1 | 2 |
| Utah | 0 | 0 | 0 | 0 | 0 | 0 |
| Vermont | 0 | 0 | 0 | 0 | 0 | 0 |
| Virginia | 2 | 3 | 1 | 2 | 1 | 9 |
| Wisconsin | 0 | 0 | 0 | 0 | 0 | 0 |
| Wyoming | 0 | 0 | 0 | 0 | 0 | 0 |
| Total[4] | 53 | 30 | 47 | 48 | 128 | 307 |

Source: 1986 NRRI Commission Water Survey

N.A.=Data not available.

[1]320 investor-owned water utilities subject to commission jurisdiction; records are not set up to enable commission to respond to question.

[2]133 investor-owned water utilities subject to commission jurisdiction; records are not set up to enable commission to respond to question.

[3]Total number of utilities exceeds breakdown because some companies do not file reports.

[4]Row total and column totals differ because some states were unable to provide data for specific revenue size.

N=39

TABLE 2-3

FREQUENCY WITH WHICH ELEMENTS OF TROUBLED WATER UTILITIES ARE FACED BY COMMISSIONS

| Elements that Define a Troubled Water Utility | Number of Responses for Each Rank: Most Important 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | Least Important 10th |
|---|---|---|---|---|---|---|---|---|---|---|
| Poor record keeping | 6 | 3 | 5 | 6 | 2 | 4 | 2 | 1 | 4 | 0 |
| Inadequate capital (negative rate base) | 10 | 4 | 5 | 1 | 2 | 2 | 5 | 4 | 1 | 1 |
| Lack of access to management/ owner | 0 | 2 | 2 | 5 | 3 | 3 | 7 | 6 | 4 | 1 |
| Poor water quality | 2 | 4 | 5 | 4 | 4 | 1 | 5 | 5 | 2 | 3 |
| Poor management | 5 | 4 | 6 | 2 | 9 | 3 | 5 | 0 | 0 | 0 |
| Operating losses | 6 | 7 | 3 | 6 | 3 | 2 | 2 | 4 | 1 | 0 |
| Poor maintenance | 1 | 6 | 6 | 9 | 5 | 12 | 0 | 0 | 0 | 0 |
| Customer complaints to commission | 7 | 4 | 2 | 2 | 5 | 2 | 2 | 7 | 2 | 0 |
| Low return on investment | 2 | 3 | 3 | 0 | 2 | 4 | 5 | 3 | 14 | 1 |
| Other | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |

Source: 1986 NRRI Commission Water Survey

TABLE 2-4

IMPORTANCE OF ELEMENTS THAT DEFINE TROUBLED WATER UTILITIES

| Elements that Define a Troubled Water Utility | Number of Responses for Each Rank: Most Important 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | Least Important 10th |
|---|---|---|---|---|---|---|---|---|---|---|
| Poor record keeping | 5 | 4 | 8 | 5 | 4 | 5 | 2 | 4 | 2 | 0 |
| Inadequate capital | 15 | 3 | 1 | 2 | 4 | 0 | 7 | 3 | 3 | 0 |
| Lack of access to management/ owner | 0 | 1 | 3 | 5 | 4 | 4 | 7 | 8 | 6 | 0 |
| Poor water quality | 6 | 4 | 7 | 2 | 2 | 2 | 3 | 5 | 5 | 2 |
| Poor management | 5 | 8 | 5 | 4 | 5 | 5 | 4 | 0 | 0 | 0 |
| Operating losses | 5 | 8 | 4 | 6 | 7 | 2 | 2 | 4 | 1 | 0 |
| Poor maintenance | 2 | 5 | 8 | 5 | 7 | 7 | 2 | 0 | 0 | 0 |
| Customer complaints to commission | 5 | 3 | 4 | 3 | 6 | 3 | 4 | 6 | 5 | 0 |
| Low return on investment | 0 | 2 | 3 | 3 | 3 | 6 | 6 | 3 | 10 | 2 |
| Other | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 1 | 3 |

Source: 1986 NRRI Commission Water Survey

N=33

to complaints. Poor water quality, poor record keeping, poor management, and operating losses were ranked as equally important and, except for water quality, equally frequent. Poor water quality ranked very low in frequency. Poor maintenance, low return on investment, and lack of access to management/owner ranked lowest in frequency and importance.

Inadequate capital appeared even more prominently as an element of troubled water utilities when first-rank and second-rank responses were summed. Deficiencies in capital remained the most frequent and most important problem. Operating losses were ranked second in frequency and tied with poor management in importance. Operating losses are closely related to inadequate capital since most firms generate capital from profits. As noted in chapter 3, operating losses are a prima facie sign of distress for small water companies. Customer complaints to the commissions ranked third in frequency and dropped to fifth place in importance. Despite being ranked sixth in frequency, poor water quality was ranked third in importance. Poor record keeping was fourth in both categories. Poor maintenance, low return on investment, and lack of access to management/owner remained last in frequency and importance.

That low return on investment was ranked very low on both dimensions while inadequate capital was ranked very high was a somewhat anomalous result. Availability of capital and return on investment are, of course, closely related. Equity investors, lenders, and owners are unwilling to supply capital to a firm with a low return on investment. A way to solve the "inadequate capital" problem is to solve the "low-return-on-investment" problem.

## Commission Documentation of the Existence of Troubled Water Utilities

Thirteen commissions reported that they document the existence of troubled utilities using a variety of methods. Five commissions maintained an annual list and five systematically sorted annual reports. One used an early warning system. Three other commissions based their records on the number of customer complaints they received: one commission maintained contact with other state departments and companies to conduct its oversight. The Nevada commission requires an all-inclusive annual audit and engineering reviews of its nineteen water utilities.

Connecticut monitors the frequency of noncompliance with commission orders. Pennsylvania is the only state with several hundred investor-owned water utilities under commission jurisdiction that documents their existence. The Pennsylvania commission uses an internal listing to monitor the troubled utilities. Additional methods of documentation used by the commissions include periodic investigations, routine plant inspections, and monitoring of company records. The majority of the states responding reported that they did not regularly document the existence of troubled water utilities.

## Formal Commission Authority

The commissions were questioned about the kinds of statutory authority they have and whether they have formal regulations regarding troubled water utilities. Four state commissions--Alaska, California, Nevada, and South Carolina--said that they have a formal policy specifically addressing to the regulation of troubled water utilities.

Thirty-three of the forty-one responding commissions have authority to encourage compliance and thirty-two have authority to enforce compliance. Seven commissions are able to force receivership; five are able to force acquisitions. The Kansas and Kentucky commissions have the authority to condemn a utility. The Ohio commission, under statutory authority, can take legal action against the officers, agents, and employees of the water utility.

Of the seven commissions with the largest number of utilities, California and North Carolina reported the widest range of regulatory authority. The California commission can encourage and force compliance, force takeovers, force receivership, and condemn a utility. The North Carolina commission can encourage and force compliance as well as force a takeover of a utility. The remaining four commissions can encourage and force compliance. As an incentive to compliance, the New York and New Jersey commissions can encourage municipal acquisitions.

## Changes in Regulatory Status

Thirty nine commissions reported that since 1982, 500 water utilities have ceased operating as separate, distinct utilities under commission regulation. Two hundred twenty-nine utilities were acquired by public agencies while 165 utilities were acquired by privately owned utilities. Types of public mergers included municipal, county, and water sewer districts. Thirty-nine utilities were dissolved. Thirty-six were transferred to the control of homeowner associations. An additional 30 utilities were transferred to the control of cooperatives and one was transferred to an Indian tribe. Table 2-5 documents these changes in regulatory status.

TABLE 2-5

NUMBER OF WATER UTILITIES CHANGING STATUS, 1982-1986

| Type of Change | Number |
|---|---|
| Dissolution | 39 |
| Municipal Merger | 119 |
| County Merger | 49 |
| Water/Sewer Merger | 61 |
| Homeowners Merger | 36 |
| Cooperative | 30 |
| Private Merger | 165 |
| Other: Indian Tribe | 1 |
| Total | 500 |

Source: 1986 NRRI Commission Water Survey

## Private Acquisitions

Fourteen commissions provided information on twenty-four private acquisitions occurring since 1982. Chapter 4 discusses twelve of these private mergers in detail. Table 2-6 lists the annual revenues of both the acquiring and acquired water utilities. As expected, the

TABLE 2-6

ANNUAL REVENUES OF ACQUIRING AND ACQUIRED WATER COMPANIES

| | >$250,001 | $100,001-$250,000 | $ 40,001 $100,000 | $15,001-$40,000 | <$15,000 |
|---|---|---|---|---|---|
| Acquiring Utilities | 21 | 0 | 0 | 0 | 2 |
| Acquired Utilities | 2 | 3 | 4 | 4 | 10 |

Source: 1986 NRRI Commission Water Survey

acquiring utilities were, on the average, ten times larger than the utilities being acquired. State commission staffs report that most of the acquired utilities had characteristics such as poor management, poor maintenance, poor water quality, operating losses, and customer complaints.

In the majority of the private acquisitions, the commissions did not explore any alternatives to the private merger. Where alternatives were explored, the reasons for rejecting the alternatives ranged from the anticipated costliness of the specific alternative to the undesirability of the alternative (e.g., abandonment). The primary initiator in most of the acquisitions was the acquiring utility. In only a minority of cases was the initiator either the acquired utility or the state regulatory commission.

Commission rationale for private acquisition varied from a public interest argument to the financial and technical capability of the acquiring utility to provide improved water service. The commissions indicated that their most typical involvement in the acquisitions was ratification via certification authority. The commissions employed both formal and informal procedures in the private acquisitions. The majority used formal hearings and customer notification procedures, as well as providing staff assistance to the involved utilities. The commissions indicated that in over 90 percent of the acquisitions, quality of service improved as a result of the acquisition; however, water rates increased in only 50 percent of the acquisitions.

The commissions, in a majority of cases, indicated that the acquiring utility would be willing to undertake another similar acquisition.

Similarly, the commissions, in a majority of cases, indicated that they would be willing to be involved in another similar acquisition. However, most of the commissions indicated that they would change their procedures and/or the nature of their involvement in similar acquisitions. Policy recommendations included the development of a tracking system for small water utilities to insure early action to avoid deterioration of water service.

# CHAPTER 3

## EARLY IDENTIFICATION OF SMALL, TROUBLED WATER UTILITIES

There are many small water utilities in the United States that are in serious financial difficulty. These companies often do not attract the attention of regulatory commissions until the company appears for tariff adjustments or until commissions receive numerous complaints regarding the quality of water and service of these companies. As indicated in a previous NRRI study (Lawton and Davis 1983), small water companies absorb inordinate amounts of time of regulatory commissions, but account for only a small portion of the revenues of the regulated utilities.

Complaints about water quality and service are symptomatic of the financial distress of these small companies. It is difficult for small water companies to maintain water quality even without the continual upgrading of federal, state, and local health and sanitary requirements. The cost of renovating and maintaining the water system can exceed the financial ability of these firms. The options for owners of these systems are either to upgrade a relatively small system with expensive equipment and seek substantial rate increases to pay for these improvements or to abandon the system. The latter can be accomplished either by "walking away" from it or by filing legal abandonment documents required by most states. Raising the funds needed for capital improvements is difficult for these small firms, thus abandonment is an attractive alternative. However, many of the small water companies drift for years without doing anything, and when financial or other problems become overwhelming, commissions are forced to find suitable solutions for the prolonged problems.

In a previous NRRI study (Davis et al. 1984), the financial and management problems of small water companies were discussed and sources of funds for these troubled companies were listed for each state. One of the goals of the present study is to find a specific way of identifying individual "troubled" water companies as early as possible. The goal is to find solutions for these companies before they become financially distressed and burden both customers and state commissions.

The burden to customers is inadequate water supply, deterioration in water quality, and increased risk of health problems. The burden to commissions is increased monitoring, inspections, and other time-consuming activities.

## An Early Warning Monitoring System and Failure Prediction Models

Early detection of financially troubled companies has been the focus of much research over the past several decades. There are several obvious reasons for this type of research. Investors do not want to lose funds investing in potentially unstable firms and have sought risk-reducing sources of information about individual firms. A further reason for the research has been the need of regulatory agencies to protect the public from the possibility of failure of those firms deemed as having an overwhelming public involvement such as banks, airlines, and so forth. The search for "failure prediction models" thus was initiated under the sponsorship of the Federal Reserve Board and the Federal Deposit Insurance Corporation (FDIC).

It was our original intention to find existing failure prediction models and/or other techniques that would be adaptable to water companies and to apply them to small water companies. The use of such models is increasing among large financial institutions such as banks, brokerage houses, and rating agencies; all the models are essentially derived from the statistical probability models first tested by Robert Altman and a group of financial experts at the Federal Reserve and FDIC (Altman, 1983).

In developing early warning or failure prediction models, most researchers have used a selection of key ratios and other variables and have correlated these with a sample of failed companies. Certain significant variables or ratios emerged as highly correlated with failed companies many years before actual failure. Failure in most studies was defined as occurring when bankruptcy was legally declared. The identification of these key ratios was done using multiple discriminant analysis or similar statistical techniques. The estimation of these models and their mathematical adaptations are somewhat complex; thus they are not discussed in this report. A relatively concise discussion

of these statistical and mathematical procedures is contained in Altman (1983) and Bovenzi et al. (1983). When the significant ratios were applied to the historical experience of failed and nonfailed companies, it was clear that early patterns of deterioration were evident for these troubled companies when compared with healthy firms. These key ratios were concluded to be good "predictors" of failure when used with other ratios developed by Altman and others. Table 3-1 lists the key variables that have been found useful in the various studies on potential failure of companies. Most of these variables are ratios.

Since Altman's models are the most widely used and considered to be among the best prediction models, his models are used in this study. The variables for Altman's 1968 model, called the Z-Score model, are listed below in table 3-2. The 1976 revision of his model contained seven variables and is called the Zeta model. The Zeta model is one of the few commercially available prediction models (it is copyrighted and sold through Zeta Services, Inc.). The actual variables in the two models are similar; however, prediction accuracy is slightly better using the Zeta model. Since the 1976 model is proprietary, the numerical values of the coefficients in the model are not available, thus simulations with the Zeta model are not possible. A sample of a Zeta analysis is found in table 3-3.

The above variables resulted from numerous tests by Altman using a great variety of possible combinations of variables. Other researchers have found similar variables to be significant predictors of failure but the variable definitions and specifications differ across industries (Bovenzi et al., 1983). For our purposes, the basic Altman Z-Score model was considered adequate. The Z-Score model of Altman has the following estimated coefficients:

$$Z=1.2(X1) + 1.4(X2) + 3.3(X3) + .6(X4) + 1.0(X5)$$

The Z in a linear probability model such as Altman's is the directly estimated failure probability. The Z-Score results can generally be interpreted within the following range of values:

TABLE 3-1

VARIABLES, GROUP MEANS, F-TESTS
ONE PERIOD PRIOR TO BANKRUPTCY DATA

| Variable Number | Name | Population means Failed | Nonfailed | Univariate F-test |
|---|---|---|---|---|
| (1) | EBIT/TA | -0.00555 | 0.11176 | 54.3 |
| (2) | NATC/TC | -0.02977 | 0.0742 | 36.6 |
| (3) | Sales/TA | 1.312 | 1.620 | 3.3 |
| (4) | Sales/TC | 2.107 | 2.160 | 0.0 |
| (5) | EBIT/Sales | 0.00209 | 0.07709 | 30.2 |
| (6) | NATC/Sales | -0.01535 | 0.04002 | 33.1 |
| (7) | Log tang. assets | 1.985 | 2.222 | 5.5 |
| (8) | Interest coverage | -0.5.995 | 5.341 | 26.1 |
| (9) | Log no. (8) & 15 | 0.9625 | 1.162 | 26.1 |
| (10) | Fixed charge coverage | 0.2992 | 2.1839 | 15.7 |
| (11) | Earnings/debt | -0.0792 | 0.1806 | 32.8 |
| (12) | Earnings/5 yr. mats | -0.1491 | 0.6976 | 8.8 |
| (13) | Cash flow/fixed charges | 0.1513 | 2.9512 | 20.9 |
| (14) | Cash flow/TD | -0.0173 | 0.3136 | 31.4 |
| (15) | WC/LTD | 0.3532 | 2.4433 | 6.0 |
| (16) | Current ratio | 1.5757 | 2.6040 | 38.2 |
| (17) | WC/total assets | 0.1498 | 0.3086 | 40.6 |
| (18) | WC/cash expenses | 0.1640 | 0.2467 | 5.2 |
| (19) | Ret. earn./total assets | -0.00066 | 0.2935 | 114.6 |
| (20) | Book equity/TC | 0.202 | 0.526 | -64.5 |
| (21) | MV equity/TC | 0.3424 | 0.6022 | 32.1 |
| (22) | 5-yr. MV equity/TC | 0.4063 | 0.6210 | 31.0 |
| (23) | MV equity/total liabilities | 0.6113 | 1.8449 | 11.6 |
| (24) | Standard error of estimate of EBIT/TA (norm) | 1.687 | 5.784 | 33.8 |
| (25) | EBIT drop | -3.227 | 3.179 | 9.9 |
| (26) | Margin drop | -0.217 | 0.179 | 15.6 |
| (27) | Capital lease/total assets | 0.251 | 0.178 | 4.2 |
| (28) | Sales/fixed assets | 3.72 | 4.179 | 3.5 |

Source: Altman 1983, 169

[a]EBIT = earnings before interest and taxes; NATC = net available for total capital TA = total tangible assets; LTD = long-term debt; MV = market value; TC = total capital; TD = total debt; WC = working capital.

TABLE 3-2

ALTMAN'S Z-SCORE MODEL VARIABLES

| Number | Variable Definitions |
|---|---|
| X1. | Net working capital (current assets-current liabilities/total assets) |
| X2. | Retained earnings/total assets |
| X3. | Earnings before interest and taxes/total assets |
| X4. | Market value of all equity/book value of debt |
| X5. | Sales/total assets |

Source: Altman 1983, 106.

TABLE 3-3

SAMPLE OF ZETA REPORT

CUSIP: 20320110 — COMMONWEALTH OIL REFNG INC (CWO) — SIC CODE: 2911

S&P'S RATING: CCC — MOODY'S RATING: CAA

| FISCAL YEAR END | | ZETA WEIGHTED SCORE | ZETA RELATIVE PERCENTILE | ADJUSTED PER SHARE DATA EARNINGS | DIVIDENDS | HIGH PRICE | LOW PRICE | UNFUNDED PENSION LIABILITIES AS A % OF NET ASSETS |
|---|---|---|---|---|---|---|---|---|
| 12/76 | CHAPTER XI MARCH 3, 1978 | -2.57 | 9 | -2.24 | 0.0 | 11.75 | 6.75 | 0 |
| 12/75 | | -1.72 | 13 | -1.75 | 0.0 | 12.63 | 5.25 | 0 |
| 12/74 | | 0.26 | 26 | 0.60 | 0.0 | 14.88 | 5.00 | 0 |
| 12/73 | | 0.63 | 26 | 2.38 | 0.0 | 14.42 | 6.01 | 0 |
| 12/72 | | 1.12 | 29 | 0.07 | 0.0 | 16.94 | 7.33 | 0 |
| 12/71 | | 4.25 | 58 | 1.00 | 0.39 | 16.83 | 10.77 | 0 |
| 12/70 | | 3.37 | 49 | 1.25 | 0.52 | 20.72 | 11.76 | 0 |
| 12/69 | | 4.10 | 55 | 1.49 | 0.52 | 25.14 | 14.68 | 0 |
| 12/68 | | ****** | ** | 1.18 | 0.52 | 26.33 | 15.97 | 0 |
| 12/67 | | ****** | ** | 1.15 | 0.52 | 25.57 | 16.51 | 0 |

Commonwealth Oil filed a Chapter XI bankruptcy petition on March 3, 1978. Commonwealth's ZETA® score became negative as of its December, 1975 financial statements, once again signalling the company's highly risky situation. Equally important warning signals were the yearly drops in the ZETA® score between 1971 and 1974. Each change raised questions about the fundamentals of this company.

Source: Altman 1983, 141.

| | |
|---|---|
| <1 to 1.81 | High failure probability within 2 years |
| => 2.99 | No failure probability within 2 years |
| 1.81 to 2.99 | Area of significant UNCERTAINTY |

Although Altman's original model can predict failure as much as 5 years before it occurs, the model presented here is most accurate for predicting failure within 2 years (Altman 1983, 117). Most users of the prediction models use the extreme values to be certain of their evaluation; Z values in the gray area, that is, between 1.81 and 2.99, are used with extreme caution. A firm with a Z score of 1.00 has a high probability of failure within 2 years; a firm with a Z score of 3.50 is reasonably healthy and would not be likely to fail within 2 years. The example of the Zeta Services, Inc. analysis presented in table 3-3 indicates the yearly Z score for a sample company and illustrates clearly the deterioration in its Z score over time.

In response to criticisms, Altman incorporated two revisions to make the model useful for privately owned but nontraded corporations and for relatively small firms. Therefore, Z' redefines variable X4 to include book value of equity rather than market value; Z" drops the size-related variable, X5. The revised models and ranges for Z are:

$$Z' = .71(X1) + .85(X2) + 3.11(X3) + .42(X4) + 1.0(X5)$$

| | |
|---|---|
| <1 to 1.23 | High failure probability |
| =>2.90 | No failure probability |
| 1.23 to 2.90 | Area of significant UNCERTAINTY |

$$Z'' = 6.56(X1) + 3.26(X2) + 6.72(X3) + 1.05(X4)$$

| | |
|---|---|
| <1 to 1.10 | High failure probability |
| =>2.60 | No failure probability |
| 1.23 to 2.90 | Area of significant UNCERTAINTY |

The average values for the variables are presented in table 3-4 for the sample of failed and nonfailed companies. It is apparent that the differences in the averages for these companies is very large. These same averages are compared later with averages for some small and large water companies. These comparisons indicate the limitations in applying those generalized models to small water companies. Nevertheless, the use of these models is illustrative of what regulatory commissions could develop for monitoring small water companies and the large differences between healthy and unhealthy companies.

## Application of Failure Prediction Models to Large Water Companies

There are many large water utilities that are financially healthy and whose stock is actively traded. These companies are followed by the brokerage firm of Edward D. Jones & Co., which publishes quarterly data on these utilities. A sample of these large successful water companies was used to test the applicability of the 1968 Z-Score model. The

TABLE 3-4

VARIABLE AVERAGES* FOR BANKRUPT AND NONBANKRUPT COMPANIES: ALTMAN 1968 Z-SCORE MODEL

| Variable | Bankrupt Companies | Nonbankrupt Companies |
|---|---|---|
| X1 | -6.1% | 41.3% |
| X2 | -62.6 | 35.5 |
| X3 | -31.8 | 15.4 |
| X4 | 40.1 | 247.7 |
| X5 | 1.5x | 1.9x |

Source: Altman 1983, 109

*Averages are calculated one year prior to bankruptcy.

purpose of applying the models to successful and relatively large water companies was to determine their applicability to nonmanufacturing companies, that is, large water utilities. If the models were applicable to large water companies, they then could be tested on smaller water companies.

The water companies chosen were those that enjoyed the highest rate of return on equity in late 1985. Those firms are the Indianapolis Water Company, American Water Works Company, Southwest Water Company, and Consumers Water Company. American and Consumers are the two largest water utility holding companies in the United States.

The results of the application of the 1968 Z-Score model are shown in table 3-5. Because of the limitations of the basic Z-Score model, the Z' and the Z" models were also used for each of the firms.

TABLE 3-5

RESULTS OF ALTMAN 1968 Z-SCORE MODELS APPLIED TO THE MOST PROFITABLE LARGE WATER UTILITIES IN 1983 OR 1984

| Company | Z-Score | Z'-Score | Z"-Score |
|---|---|---|---|
| Indianapolis | 1.10 | .90 | 1.76 |
| American (83) | 1.11 | .99 | 1.87 |
| Southwest | 1.17 | 1.21 | 2.28 |
| Consumers (83) | 1.13 | .95 | 1.48 |
| Critical Low Z | 1.81 | 1.23 | 1.10 |
| Critical High Z | 2.99 | 2.90 | 2.68 |

It is clear from the results in table 3-5 that none of the Z or Z' scores reach the critical levels. Therefore, Altman's Z and Z' models predict failure within 2 years for these four companies. All values are in the gray area for the Z" model.

To appreciate why the Altman models do not work well with large water companies, it should be noted that the Altman models were developed from a sample of failed manufacturing and retailing firms. Its applicability to these firms can be illustrated by applying the Z-Score model to the Limited Company, a large, financially healthy retailing firm. The model generates a Z score of 8.18 for 1984. Similar applications of the model can be done for reasonably large manufacturing or retailing companies.

It is obvious that water utilities, and public utilities in general, have different operating and financial characteristics than do manufacturing or retailing firms. For example, variable X5 in the Altman model is a size-related variable that shows the ratio of sales to total assets. The averages in table 3-4 indicate that most of the companies from which the model were derived had sales-to-asset ratios of approximately 1.5. With their huge asset base, public utilities seldom have sales-to-asset ratios exceeding 1.0, thus this variable does not fit the existing Altman models when it is applied to water utilities. Deleting this variable in Z" allowed this model to become more relevant to the four water firms. To illustrate this, the averages for the original Altman sample of nonbankrupt firms shown in table 3-4 are compared with similar averages and ratios for two large and two small water companies. These numbers are presented in table 3-6.

Neither the large nor small company ratios in table 3-6 compare to those for the Altman sample. Looking at the wide disparity in the averages in table 3-6, it is understandable why the Z models predicted failure for water companies, which to regulators and utility experts appear to be financially healthy. It was also clear after some experimentation that these models are also not very useful for determining the financial health of small water companies. A statistical prediction model similar to those developed by Altman and others could be developed if the states or NARUC decided to invest the time and funds needed to do so. Existing models are simply not applicable without retesting and

TABLE 3-6

VARIABLE AVERAGES FOR ALTMAN SAMPLE AND SELECTED WATER COMPANIES

| | | Large | | Small | |
|---|---|---|---|---|---|
| Variable | Altman(NB) | American | Consumers | Au Sable | HV Water |
| X1 | 41.4% | 1.0% | 1.0% | 3.0% | 1.0% |
| X2 | 35.5 | 21.0 | 7.0 | 12.0 | 7.0 |
| X3 | 15.4 | 5.0 | 9.0 | 12.0 | 6.0 |
| X4 | 247.7 | 29.0 | 27.0 | 52.0 | 27.0 |
| X5 | 1.9x | .3x | .3x | .3x | .3x |

using variables more relevant to water utilities, particularly small water companies. If regulators wished to proceed with the estimation of such a model, it would require a more extensive sample of small water companies and more years of data for these companies than were available for this report.

## Peer Group Monitoring and Early Warning Techniques

Although existing statistical models are apparently not applicable to water utilities, there are other techniques that can be devised by regulators for the early detection of the financial problems of small water companies. The most widely known of these techniques is called "peer" analysis. It is employed by bank regulatory agencies, the Federal Reserve Board, the Federal Deposit Insurance Corporation, the Controller of the Currency, and the Federal Credit Union Administration. Banks, savings and loans institutions, and credit unions are carefully monitored by these agencies. In 1978, all of these agencies began using a common statistical monitoring program called the Uniform Bank Performance Report. The federal agencies are currently trying to develop a more statistically reliable prediction model similar to those used by Zeta Services. A summary of these models and the related research is contained in Bovenzi (1983), Avery and Haneck (1984), and Avery et al. (1985).

The data for the Uniform Bank Performance Report are derived from quarterly "call" data that all regulated financial institutions must file. From these quarterly data, a large number of ratios are calculated for each financial institution. The ratios are listed under five categories: capital, assets, management, equity, and liquidity. Each individual institution is compared with its peer group and ranked according to percentile, that is, its relative place from 1 to 100. A financial institution that falls below the "median" of all its peers is flagged and subject to intense scrutiny. Each of the federal agencies uses the raw "call" data for calculating its specific ratios. Some agencies use critical values for each ratio; some use a composite of several ratios for assessing the status of its regulated institutions. These critical values and composites are not available from the federal agencies and most of their internal evaluation procedures are closely guarded information. Once an institution is determined to be in trouble, it is subject to an on-site audit; after the audit the firm is given a CAMEL rating from 1 to 5, with 5 being a sign that the institution is in financial distress. The CAMEL rating is composed of the first letters of the five categories of examination noted above, i.e., capital, assets, and so forth. Banks rated 5 are referred to the FDIC that arranges a takeover or other solution for that institution. Distressed savings and loan institutions and credit unions are referred to their respective regulatory agencies.

Table 3-7 shows a sample copy of a Uniform Bank Performance Report. It can be seen from the table that the federal agencies begin to identify troubled institutions early. The rankings are shown back to 1981. The peer value given is that for the "median" of all banks in the peer group. For banks, a peer group determination is based on several factors such as bank size, location, population in area, and so forth. Table 3-7 indicates that this particular bank was assigned a different peer group in 1984 for some unknown reason. Judgments about the distress level of each institution are made by the responsible federal agency based on its judgments regarding the priority of ratios affecting its client institutions. The federal screening system is efficient and done automatically by computer once the quarterly data are reported by

TABLE 3-7

SAMPLE COPY OF A PEER EVALUATION

CERT # DSB #
CHARTER #

SUMMARY RATIOS

| | 12/31/85 | | | 12/31/84 | | | 12/31/83 | | | 12/31/82 | | 12/31/81 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AVERAGE ASSETS ($000) | 328273 | | | 304586 | | | 281303 | | | 253596 | | 234126 | |
| NET INCOME ($000) | 3719 | | | 3414 | | | 2857 | | | 2034 | | 2085 | |
| # BANKS IN PEER GROUP | 229 | | | 199 | | | 770 | | | 737 | | 690 | |
| EARNINGS AND PROFITABILITY | BANK | PEER 05 | PCT | BANK | PEER 05 | PCT | BANK | PEER 07 | PCT | BANK | PEER 07 | BANK | PEER 07 |
| PERCENT OF AVERAGE ASSETS: | | | | | | | | | | | | | |
| NET INTEREST INCOME (TE) | 4.73 | 4.83 | 47 | 4.67 | 4.67 | 54 | 4.77 | 4.67 | 55 | 4.73 | 4.83 | 4.73 | 4.80 |
| + NONINTEREST INCOME | .74 | .87 | 36 | .71 | 1.00 | 32 | .61 | .81 | 34 | .55 | .79 | .53 | .77 |
| - OVERHEAD EXPENSE | 3.03 | 3.59 | 29 | 3.13 | 3.59 | 32 | 3.20 | 3.51 | 41 | 3.32 | 3.65 | 3.27 | 3.58 |
| - PROVISION: LOAN/LEASE LOSSES | .35 | .41 | 49 | .30 | .33 | 55 | .32 | .29 | 63 | .46 | .28 | .36 | .23 |
| = PRETAX OPERATING INCOME (TE) | 2.09 | 1.80 | 63 | 1.95 | 1.73 | 61 | 1.86 | 1.61 | 62 | 1.50 | 1.67 | 1.64 | 1.75 |
| + SECURITIES GAINS (LOSSES) | .01 | .05 | 43 | .00 | .01 | 60 | .01 | .00 | 70 | -.01 | -.02 | -.10 | -.04 |
| = PRETAX NET OPER INC (TE) | 2.09 | 1.87 | 62 | 1.96 | 1.72 | 61 | 1.86 | 1.62 | 62 | 1.49 | 1.62 | 1.54 | 1.68 |
| NET OPERATING INCOME | 1.13 | 1.01 | 63 | 1.12 | .95 | 66 | 1.02 | .91 | 61 | .80 | .91 | .89 | .93 |
| ADJ. NET OPER INCOME | 1.15 | 1.11 | 54 | 1.12 | 1.01 | 54 | 1.02 | .96 | 55 | .80 | .95 | .89 | .97 |
| ADJ. NET INCOME | 1.08 | 1.04 | 55 | 1.00 | .96 | 52 | .97 | .88 | 59 | .80 | .83 | .83 | .84 |
| NET INCOME | 1.13 | 1.03 | 62 | 1.12 | .96 | 64 | 1.02 | .91 | 60 | .80 | .91 | .89 | .94 |
| PERCENT OF AVG EARNING ASSETS: | | | | | | | | | | | | | |
| INTEREST INCOME (TE) | 11.03 | 11.63 | 21 | 11.97 | 12.43 | 27 | 11.58 | 11.94 | 35 | 12.67 | 13.39 | 12.61 | 13.63 |
| INTEREST EXPENSE | 6.07 | 6.36 | 30 | 6.95 | 7.27 | 26 | 6.52 | 6.70 | 37 | 7.64 | 7.97 | 7.66 | 8.21 |
| NET INT INCOME (TE) | 4.96 | 5.34 | 34 | 5.02 | 5.17 | 47 | 5.06 | 5.22 | 48 | 5.03 | 5.42 | 4.99 | 5.42 |
| LOAN & LEASE LOSSES, RESERVES AND NONPERFORMING LOANS AND LEASES | | | | | | | | | | | | | |
| NET LOSS TO AVG TOT LOAN & LEASE | .51 | .56 | 60 | .47 | .41 | 68 | .58 | .46 | 69 | .81 | .48 | .64 | .35 |
| EARNINGS COVERAGE OF NET LOSS(X) | 6.57 | 9.26 | 48 | 7.06 | 10.71 | 41 | 5.65 | 10.23 | 41 | 3.20 | 8.83 | 3.86 | 9.84 |
| LOSS RESERVE TO NET LOSSES (X) | 8.25 | 4.03 | 82 | 10.01 | 4.45 | 84 | 10.07 | 4.30 | 84 | 7.83 | 3.80 | 10.80 | 4.42 |
| LOSS RESV TO TOT LOANS & LEASE | 4.17 | 1.17 | 98 | 4.35 | 1.10 | 99 | 5.41 | 1.09 | 99 | 6.17 | 1.11 | 6.57 | 1.07 |
| % NONPERFORMING LOANS & LEASES | 1.70 | 1.80 | 55 | 1.47 | 2.15 | 48 | 1.32 | 2.08 | 42 | 1.67 | 2.34 | NA | NA |
| LIQUIDITY AND RATE SENSITIVITY | | | | | | | | | | | | | |
| VOLATILE LIABILITY DEPENDENCE | -12.13 | 1.29 | 20 | -8.83 | -1.23 | 32 | -17.45 | -7.74 | 26 | -15.59 | -3.71 | -10.88 | 3.04 |
| NET LOANS & LEASES TO ASSETS | 61.95 | 57.93 | 57 | 62.53 | 55.80 | 71 | 56.30 | 51.70 | 64 | 54.30 | 50.83 | 55.05 | 52.37 |
| NET ASSETS REPRICABLE IN 1 YR OR LESS TO ASSETS | -1.07 | -2.71 | 52 | -6.72 | -3.48 | 34 | -7.52 | -2.55 | 31 | NA | NA | NA | NA |
| CAPITALIZATION | | | | | | | | | | | | | |
| PRIM CAPITAL TO ADJ AVG ASSETS* | 8.56 | 7.65 | 76 | 8.38 | 7.58 | 78 | 9.09 | 7.74 | 83 | 9.32 | 7.86 | 9.98 | 7.97 |
| CASH DIVIDENDS TO NET INCOME | 52.73 | 34.12 | 79 | 70.01 | 41.91 | 83 | 63.07 | 36.62 | 84 | 89.18 | 39.04 | 55.16 | 38.56 |
| RET EARNS TO AVG TOTAL EQUITY | 9.38 | 9.59 | 50 | 5.87 | 8.00 | 37 | 6.44 | 7.58 | 38 | 1.40 | 7.15 | 6.13 | 7.79 |
| GROWTH RATES | | | | | | | | | | | | | |
| ASSETS | 6.19 | 10.89 | 29 | 13.17 | 9.74 | 68 | 10.87 | 12.48 | 46 | 8.34 | 9.57 | 2.90 | 8.67 |
| PRIMARY CAPITAL* | 6.65 | 10.39 | 28 | 3.83 | 10.52 | 16 | 4.22 | 9.09 | 21 | .89 | 7.99 | 3.93 | 8.51 |
| NET LOANS & LEASES | 5.20 | 13.32 | 27 | 25.70 | 22.63 | 64 | 14.94 | 14.44 | 53 | 8.86 | 6.42 | 8.79 | 6.03 |
| VOLATILE LIABILITIES | 6.54 | 12.19 | 46 | 62.64 | 11.36 | 90 | -19.47 | -5.21 | 34 | 20.40 | 4.85 | -21.26 | 25.50 |

*REFER TO THE UBPR USERS GUIDE FOR PRIMARY CAPITAL DEFINITION.
00041

Source: Federal Deposit Insurance Corporation, Uniform Bank Performance Report.

the financial institutions. These reports are provided quarterly to the individual financial institutions and state regulatory authorities.

## Peer Groups

It is important from a monitoring point of view that firms be compared with similar firms. This rule of logic applies to all comparative analyses. Standard ratio analysis of private firms relies on ratios supplied by a number of rating agencies, including Moody's and Standard & Poor's. These comparative statistics need to be interpreted carefully with regard to peer group standing; thus, proper selection of the peer group is critical to the entire process.

Peer comparisons are a relatively simple and inexpensive early warning technique that can be applied to small potentially troubled water companies for early detection of financial distress. In order to find the "key" predictor ratios for small water companies, a review of the "key" ratios used in most failure prediction models was completed; Altman (1983) indicates that variables found most in regulated firms (e.g., railroads) are similar to those found in financial institutions (see table 3-1). However, no widely accepted models exist for regulated utilities; thus, the variables used in the rest of this chapter are based on other general prediction models. Even Altman believed that his basic five-variable (1968 Z-Score) model is almost as reliable as his seven-variable (1976 ZETA) model. After simulating both models in 1976, he concluded that: "Once again the ZETA model dominates in year to year, but notice that the new seven-variable model is, in some years, only slightly more accurate than the 'old' five-variable model when the data is comparable, that is, adjusted for more meaningful evaluation" (Altman 1983, 140). We feel confident, therefore, that our list of eight variables (ratios) used throughout the rest of this chapter approximates the "key" predictor ratios that we would find in a more detailed statistical modeling procedure of water utilities.

## Small Water Company Sample

In order to identify early signs of distress for small water companies using the peer group technique, five states were asked to supply NRRI with financial reports for five successful and five unsuccessful small water companies for a minimum of 5 years. The results are shown in table 3-8. No precise definition of "success" was given to the commissions; thus, the selection of companies is based on each commission's concept of "success." Presumably, the successful utilities were profitable each year.

Numerous ratios were calculated for these companies including those ratios found especially significant in other studies. This was done to isolate those small companies that were financially healthy and to develop from this group some benchmark ratios against which the weaker companies could be compared. We attempted to develop a peer group from the sample submitted by the various states. In this way, it was thought that states could devise their own early warning system if this report illustrated the technique. Data were submitted for about thirty-five individual companies, but only a few were financially healthy in 1984 (the last year for which data were available). Some of these utilities were water and sewer companies. Twenty-seven usable sets of data were provided by Illinois, Missouri, and New York. Of the twenty-seven, only eight had positive rates of return on equity in 1984; only seven had positive rates of return for both 1981 and 1984; and only five had return on equity values equal to or greater than the 13.4 percent earned for most firms in 1984. Several experiments were made to devise a peer group that would enable state commissions to identify troubled small water companies early. That is, a screening system like that used by federal banking agencies was the primary guide for our efforts.

Unfortunately, the number of successful water companies in our sample was too small to use as a peer group. The standard deviations on the ratios were quite large and this type of dispersion made meaningful comparisons difficult. Moreover, the financially successful small companies did not exhibit financial or operating characteristics typical of most water utilities and/or small companies in general. For example,

TABLE 3-8

SCREENING RATIOS OF THE FEDERAL FINANCIAL REGULATORY INSTITUTIONS

| Ratio | Agency Using Ratio | | | | |
|---|---|---|---|---|---|
| | FRB | FDIC | FHLBB | NCUA | OCC |
| Capital | | | | | |
| 1. Equity capital decrease | | X | | | |
| 2. Equity capital/total assets | | C | X | | X |
| 3. Retained earnings/average equity capital | | | | | X |
| 4. Equity capital/adjusted equity capital | X | | | | |
| 5. Gross capital/adjusted risk assets | X | | | | |
| 6. Reserves to total loans | | | | C | |
| 7. Net scheduled items/net worth | | | X | | |
| Profitability | | | | | |
| 1. Net operating income/average total assets | | C | | | |
| 2. Net income/assets | | | X | | X |
| 3. Interest expense on deposits and federal funds purchased and borrowings/total operating income | | C | | | |
| 4. Total expenses-(provision for loan losses + dividends)/gross income | | | | C | |
| 5. Adjusted return on assets | | | | | X |
| 6. Net income/total assets-cash items | X | | | | X |
| 7. Total other earnings/average assets | | | | | X |
| 8. Gross operating income/average assets | | | X | | |
| 9. Net income/gross income | | | X | | |
| 10. Net operating income/gross operating income | | | X | | |
| Asset quality | | | | | |
| 1. Delinquent loans/total assets | | | X | | |
| 2. RFO and LTFs/total assets | | | X | | |

TABLE 3-8--Continued

| | | | | | |
|---|---|---|---|---|---|
| 3. Delinquent loans/all reserves | | | | C | |
| 4. Delinquent loan ratio | | | | C | |
| 5. Gross loan losses/NOI + provision | X | | | | |
| 6. Provision for possible loan losses/ average assets | | | | | X |
| 7. Speculative lending/total assets | | | X | | |
| 8. Gross charge-offs - recoveries/ average loans | C | | | | |
| 9. Net scheduled items/total assets | | | X | | |
| Liquidity | | | | | |
| 1. Net borrowings-mortgages/cash and due from banks + total securities maturing in one year or less | | C | | | |
| Interest sensitivity and liabilities for borrowed money | | | | | |
| 1. $100,000 or more time deposits + net borrowing/total loans | | C | | | |
| 2. Advances + borrowed money/total savings | | | X | | |
| 3. Interest-sensitive funds/total sources of funds | X | | | | |
| 4. High-rate savings/total savings | | | X | | |
| Efficiency ratios | | | | | |
| 1. Total operating expenses/total operating income | X | | | | |
| 2. Noninterest expense/total operating income - interest expense | X | | | | |
| 3. Cost of savings (YTD)/total savings | | | X | | |
| 4. Net interest earnings/average assets | | | | | X |
| 5. Operating expense/average assets | | | X | | |
| 6. Cost of money/average savings and borrowings | | | X | | |

Source: Barran M. Putnam. "Early Warning Systems and Financial Analysis in Bank Monitoring." The Economic Review. (November 1983): 9

some of these firms did not have current liabilities, interest expenses, positive retained earnings, and so forth. Therefore, in order to obtain a larger and more financially and operationally representative peer group of successful and unsuccessful water companies, the peer group was composed of all of the privately owned water utilities that are members of the National Association of Water Companies (NAWC) and are independently owned, that is, not a subsidiary of a water utility or other holding company. This represents the largest group of water companies for which data are readily available through the NAWC's annual reports, Financial & Operating Data and Financial Summary. Data for these companies are available through 1984. Eight key ratios were calculated for each of the independently owned firms listed in NAWC's 1981 and 1984 reports and quartile values of these are presented in table 3-9. There were thirty-eight firms listed in 1984 but only twenty-eight of these same firms were listed in the 1981 report.

## Early Warning or Screening Using NAWC as Peer Group

The sample of water utilities used to determine the ratios in table 3-9 includes most of the large water companies; thus, the sample incorporates the most and least financially successful companies. It is the largest and most easily accessible set of water utility data available to state commissions. Using the peer group approach, a number of small water companies are compared with the NAWC peer group and ranked accordingly. The results are shown in table 3-10. Data for 1981 and 1984 are used, since data before 1981 were not available for the small companies. The most successful small water companies are presented followed by some that are financially distressed. The companies are identified only with respect to the state where companies operate. New York (#1) means that this was the most financially successful small water company for which data were supplied by New York. The same ratios are used as in table 3-9 but are abbreviated in table 3-10.

The ratios used in table 3-10 represent measures of profitability (ratios 1, 2, and 5); liquidity (ratio 4); asset utilization and efficiency (ratios 3 and 7); and debt capacity or leverage (ratio 6).

TABLE 3-9

KEY MEDIAN AND QUARTILE RATIOS FOR NAWC MEMBER COMPANIES

| Ratio | 1984 Upper Quartile | 1984 MED | 1984 Lower Quartile | 1981 Upper Quartile | 1981 MED | 1981 Lower Quartile |
|---|---|---|---|---|---|---|
| 1. Net income/common equity | 14.6% | 13.5% | 11.8% | 14.8% | 11.8% | 11.8% |
| 2. Earnings/total assets | 20.5 | 16.5 | 10.0 | 16.0 | 14.0 | 11.0 |
| 3. Operating income/ total assets | 11.5 | 9.0 | 6.5 | 9.5 | 8.5 | 7.0 |
| 4. Current assets/ current liability | 154.0 | 111.0 | 172.0 | 118.0 | 70.0 | 9.0 |
| 5. Book equity/ current liability | 59.0 | 43.5 | 30.5 | 48.9 | 37.5 | 31.6 |
| 6. Operating income/ interest | 367.0 | 282.0 | 233.0 | 264.0 | 216.0 | 165.0 |
| 7. Operations and maintenance expense/total revenues | 59.5 | 49.0 | 44.0 | 56.0 | 50.0 | 44.0 |
| 8. Constributed capital/ total liability | 43.0 | 30.0 | 17.5 | 40.5 | 23.5 | 13.5 |

Note: The ratios are based on quartiles. To interpret these quartiles, imagine a range of 100 ratios. The middle ratio would be the median, the 25th the lowest quartile, and the 75th the highest quartile. In other words, there are four groups in the peer rankings: those between 1 and 25 are called the lowest group (L); those between 25 and 50 are called the lower middle group (LM); those between 50 and 75 are called the upper middle group (UM); and those between 75 and 100 are called the upper group (U).

In table 3-10, these rankings are indicated with the following letters:
U=upper quartile
UM=upper middle quartile
LM=lower middle quartile
L=lower quartile

TABLE 3-10

PEER GROUP COMPARISONS OF SELECTED WATER COMPANIES, 1984 AND 1981
SUCCESSFUL COMPANIES

| Ratio | 1984 FIRM | 1984 PEER | 1984 QUARTILE | 1981 FIRM | 1981 PEER | 1981 QUARTILE |
|---|---|---|---|---|---|---|
| **1. New York (#1)** | | | | | | |
| 1. ROE | 25.0% | 13.6% | U | N.A. | | |
| 2. RE/TA | 12.0 | 16.5 | LM | | | |
| 3. OI/TA | 12.0 | 9.0 | U | | | |
| 4. CA/CL | ncl | 111.0 | - | | | |
| 5. BE/TL | 93.5 | 43.5 | U | | | |
| 6. OI/INT | ni | 282.0 | - | | | |
| 7. O&M/REV | 53.0 | 49.0 | UM | | | |
| 8. CC/TL | ncc | 30.0 | - | | | |
| **2. New York (#2)** | | | | | | |
| 1. ROE | 22.0 | 13.6 | U | 27.0 | 11.0 | U |
| 2. RE/TA | 9.0 | 16.5 | L | (5.0) | 14.0 | L |
| 3. OI/TA | 8.0 | 9.0 | LM | 4.0 | 8.5 | L |
| 4. CA/CL | 2.0 | 111.0 | L | 2.0 | 70.5 | L |
| 5. BE/TL | 41.0 | 43.5 | LM | 16.0 | 37.5 | L |
| 6. OI/INT | ni | 282.0 | - | ni | 216.5 | - |
| 7. O&M/REV | 58.0 | 49.0 | | 52.0 | 50.0 | |
| 8. CC/TL | ncc | 30.0 | | ncc | 23.5 | - |
| **3. Missouri (#1)** | | | | | | |
| 1. ROE | 14.0 | 13.6 | U | 22.0 | 11.0 | U |
| 2. RE/TA | 14.0 | 16.5 | LM | 9.0 | 14.0 | L |
| 3. OI/TA | 13.0 | 9.0 | U | 11.0 | 8.5 | U |
| 4. CA/CL | 78.0 | 111.0 | LM | 40.0 | 70.5 | LM |
| 5. BE/TL | 34.0 | 43.5 | LM | 39.0 | 37.5 | UM |

TABLE 3-10--Continued

| | | | | | | |
|---|---|---|---|---|---|---|
| 6. OI/INT | 189.0 | 282.0 | L | 335.0 | 216.5 | U |
| 7. O&M/REV | 44.0 | 49.0 | L | 59.0 | 50.0 | U |
| 8. CC/TL | ncc | 30.0 | - | ncc | 23.5 | - |
| | | | 4. Missouri (#2) | | | |
| 1. ROE | 35.0 | 13.6 | U | (3.0) | 11.0 | L |
| 2. RE/TA | 15.0 | 16.5 | LM | 11.0 | 14.0 | L |
| 3. OI/TA | 13.0 | 9.0 | U | 2.0 | 8.5 | L |
| 4. CA/CL | 1556.0 | 111.0 | U | 21.0 | 70.5 | LM |
| 5. BE/TL | 61.0 | 43.5 | U | 49.0 | 37.5 | U |
| 6. OI/INT | 240.0 | 282.0 | LM | 50.0 | 216.5 | L |
| 7. O&M/REV | 15.0 | 49.0 | L | 74.0 | 50.0 | U |
| 8. CC/TL | 44.0 | 30.0 | U | 39.0 | 23.5 | UM |
| | | | 5. Illinois (#1) | | | |
| 1. ROE | 7.0 | 13.6 | L | 2.0 | 11.0 | L |
| 2. RE/TA | 15.0 | 16.5 | LM | 6.0 | 14.0 | L |
| 3. OI/TA | 6.0 | 9.0 | L | 1.0 | 8.5 | L |
| 4. CA/CL | 98.0 | 111.0 | LM | ncl | 70.5 | - |
| 5. BE/TL | 126.0 | 43.5 | U | 122.0 | 37.5 | U |
| 6. OI/INT | ni | 282.0 | - | ni | 216.5 | - |
| 7. O&M/REV | 66.0 | 49.0 | U | 82.0 | 50.0 | U |
| 8. CC/TL | 85.0 | 30.0 | U | 99.0 | 23.5 | U |

FINANCIALLY TROUBLED COMPANIES

| Ratio | FIRM | PEER | QT. | 6. Missouri (#1) | FIRM | PEER | QT. |
|---|---|---|---|---|---|---|---|
| 1. ROE | (2.0) | 13.6 | L | | 2.0 | 11.0 | L |
| 2. RE/TA | 45.0 | 16.5 | U | | 45.0 | 14.0 | U |
| 3. OI/TA | (1.0) | 9.0 | L | | 3.0 | 8.5 | L |

TABLE 3-10--Continued

| | | | | | | |
|---|---|---|---|---|---|---|
| 4. CA/CL | 506.0 | 111.0 | L | 105.0 | 70.5 | UM |
| 5. BE/TL | 615.0 | 45.0 | U | 520.0 | 37.5 | U |
| 6. OIL/INT | (530.0) | 282.0 | L | 403.0 | 216.5 | U |
| 7. O&M/REV | 28.0 | 49.0 | L | 75.9 | 50.0 | U |
| 8. CC/TLO | 90.0 | 30.0 | U | 70.0 | 23.5 | U |
| | | | 7. Illinois (#2) | | | |
| 1. ROE | (21.0) | 13.5 | L | (16.0) | 11.0 | L |
| 2. RE/TA | (34.0) | 16.5 | L | (20.0) | 14.0 | L |
| 3. OI/TA | ( .2) | 9.0 | L | ( 2.0) | 8.5 | L |
| 4. CA/CL | 10.0 | 111.0 | L | 7.0 | 70.5 | L |
| 5. BE/TL | 28.0 | 43.5 | L | 52.0 | 37.5 | U |
| 6. OI/IN | ( .1) | 282.0 | L | (450.0) | 216.5 | L |
| 7. O&M/REV | 76.0 | 49.0 | U | 81.0 | 50.0 | U |
| 8. CC/TL | 63.0 | 30.0 | U | 62.0 | 23.5 | U |

Note: ni=no interest expense; ncc=no contributed capital; ncl=no current liabilities; U=upper quartile; UM=upper middle quartile; LM=lower middle quartile; L=lower quartile

These are the standard measures of a firm's financial health. Ratio 8 measures the amount of contributed capital for a utility; this is a significant indicator of the ability of the firm to be merged with another firm since contributed capital is frequently not allowed in rate base in determining revenue requirements.

Interpreting the Ratios for Early Signs of Financial Distress

While the ratios shown in table 3-10 are cumbersome to calculate, the technique lends itself to easy interpretation and early identification of troubled water companies. A ranking of U or UM in the first six ratios indicates a relatively healthy company. Rankings of L or LM

indicate a company that is in financial difficulty. Looking at the 1984 results for the first five companies listed in table 3-10 shows that even these reasonably successful firms have many LM and L rankings in ratios 1 to 6. For ratios 7 and 8, rankings of LM and L are preferred since low rankings indicate control over operating expenses and also that the firm has relatively little contributed capital.

Relatively simple monitoring can be done by observing the first two ratios. These are the prima facie measures of financial health. A company with no net income is not earning a return for its investors or owners. While four of the successful firms have a ranking of U in 1984 for ROE, not one of these exhibits has a strong trend in ratio 2, the RE/TA measure of profitability. This particular ratio (RE/TA) shows the historical earnings record for the company. A firm uses earnings to pay dividends or for capital reinvestment; thus, deteriorating earnings is not a good sign for any company. Such a company soon begins to absorb its invested capital, which is the financial cushion upon which every firm must ultimately depend. For 1981, most of the firms have rankings of L or LM suggesting that even the best among these small water companies are not particularly healthy companies when compared with a large peer group. Clearly, most of these small water utilities were in financial trouble in 1981, and probably long before 1981.

The actual monitoring system employed by each commission will depend on its willingness to assign this task to a staff member who will calculate a few simple ratios and create a peer group set of ratios. The few ratios shown in table 3-10 are adequate for flagging distressed companies; the NAWC peer group data are readily available. NAWC also publishes many comparative ratios for different sizes of member companies and these are contained in its annual reports, Financial Summary and Financial & Operating Data.

An alternative peer group could be created from ratios for all class C and D water utilities within each state. This would be useful in those states where large numbers of companies exist. Whatever its choice of comparative firms, the peer group approach deserves consideration by commissions that want to resolve the problems associated with weak and distressed small water companies. The time and funds required for peer group monitoring are minimal.

How can a commission develop its own set of "key" ratios using this technique? There are many ways to answer the question. For example, most commissions with minimal statutory authority over distressed utilities could promulgate a rule that a water company with 2 successive years of negative net income would be subject to audit; and, subsequent to the audit, a determination would be made as to how the firm's problems might be resolved. Resolution could be through merger or some other solution depending on the authority of each commission. Another approach might be to determine that any company with a ranking of LM or L in four of the first six ratios would be subject to audit or some other specific examination. Essentially, one can recommend the same techniques that are now successfully used by the federal banking agencies. The technique outlined is simple, easily adaptable to specific states and utility operating characteristics, and inexpensive. Individual commissions can decide the best approach in their states based on their statutory situation and other factors.

## Why Should Commissions Care?

A question that arises with respect to the financial plight of these small companies is why should a commission care whether owners and investors are earning negative rates of return. The reasons for concern regarding these companies is that financial distress almost always results in deteriorating water quality and service, including health hazards for customers. The public is interested in safe and reliable water supply. It is this issue that may provide impetus for each commission to begin to actively isolate badly performing water companies since water delivery and quality of water are the basic problems for these small firms. Financial ill health is the lead indicater of the inability of these companies to provide clean water at an affordable price.

New Jersey is now operating under the Small Water Company Takeover Act, which allows its Board of Public Utilities, in collaboration with the Department of Environmental Protection and the Public Advocate, to order the takeover of a "small water company by the most suitable public or private entity" (State of New Jersey, 1981, 58:11-62) (see appendix

B). The focus of this statute is to resolve health-related problems associated with small (1,000 customers or less) water companies; however, a critical part of this legislation relates to the financial ability of the water company to solve its water quality problems. The takeover aspect of this legislation requires that a financially viable parent company or municipality be found to merge with the troubled small water company. The New Jersey law illustrates the interrelatedness of the financial and operational performance of troubled small water companies.

# CHAPTER 4

## PRIVATE MERGERS AND ACQUISITIONS OF SMALL WATER UTILITIES

This section focuses on recent acquisitions of small, financially troubled water utilities in the United States. We will examine twelve case studies involving acquisitions where the acquiring firm was an investor-owned water utility. There were, of course, more than twelve acquisitions in these states. The instances examined here are those that the state commission water specialists identified as being reasonably representative of recent commission policy.

In the cases where the acquirer is an investor-owned water utility, there are numerous important issues and questions. For example, what specific incentives are necessary to induce the particular acquisition? From a regulatory standpoint, what are the minimum incentives necessary to expedite the acquisition? From the acquiring firm standpoint, what are some disincentives that can impede a specific acquisition? What options other than this particular acquisition were considered? After acquisition, how are rates established for the customers of the acquired water utility? Finally, if there had been no acquisition in this particular case, what would have been the short- and long-run effects?

In addition, there are questions and issues regarding specific alternatives to acquisition. What are the implications and effects of permitting bankruptcy and receivership? Has there been any state commission experience with substituting the operating ratio for traditional rate base regulation? Finally, has either the provision of central management and other services or privatization precluded the necessity for some acquisitions?

The twelve case studies, in varying degrees, provide responses to the above questions. Thus, the case studies provide insight into why some acquisitions take place and why some acquisitions never materialize. In all twelve case studies, an executive official of the acquired and acquiring utilities was interviewed by telephone.

## Arizona

Arizona Water Company (approximate annual revenues of $13.0 million) acquired Desert Carmel Service Company (approximate annual revenues of $5,000). The merger was initiated by the mortgage company that had foreclosed on the original owner (a developer) of Desert Carmel. The Arizona Commerce Commission (CC) approved this merger on June 11, 1984.

Desert Carmel was characterized by poor record keeping, poor management, operating losses, deficient maintenance, and a vastly overbuilt water system. In contrast to $5,000 in annual revenues, Desert Carmel was incurring $101,000 in annual operating expenses ($60,000 of which were annual depreciation expenses for a grossly overbuilt system). Desert Carmel provided service to sixty-two residential customers.

The acquisition price was $10 and a dedicated 100-year water supply, that is, the acquirer provided assurance of a guaranteed water supply (an important and valuable consideration in Arizona). The net book value (depreciated original cost) of Desert Carmel plant was approximately $275,000. The rate base increment issue was resolved in a later rate case. The receipt of water allocation rights enabled the mortgage company to sell land in the Desert Carmel service area to a developer.

Desert Carmel customers continued to pay the same rates as before the merger. Thus, the short-term effect of the acquisition was stable rates. However, a rate increase became effective in July 1986.

This acquisition was motivated by Arizona Water's desire to increase its customer base and service area and to attain certain efficiencies associated with a larger scale of operations. Arizona Water was already serving an area contiguous to the service area of Desert Carmel. The acquisition was also motivated by the mortgage company's desire to get out of the water utility business. The acquisition was facilitated by the minimal acquisition price relative to the potential increment to the rate base of Arizona Water.

In this particular case, one can conjecture[3] that the merger would not have taken place if it had been apparent that the depreciated original cost of Desert Carmel plant would not be permitted in the rate base of Arizona Water. One can also conjecture that without this acquisition, Desert Carmel would have continued to provide water service but with continued operating losses, poor maintenance, and with an ownership essentially uninterested in operating a water system.

The Arizona CC did not explore any alternatives to this merger since Arizona Water was viewed as a viable purchaser.

## California

California Water Service Corporation (approximate annual revenues of $101.1 million) acquired Sunset Vista Water Company (approximate annual revenues of $26,000). The merger was initiated jointly by California Water and Sunset Vista. The California Public Utilities Commission (PUC) approved this merger on November 6, 1985. Sunset Vista was characterized by operating losses and the inability to operate effectively. Sunset Vista served approximately 370 residential customers.

The acquisition price was $90,000 which exceeded the net book value (depreciated original cost) of Sunset Vista plant. California Water was permitted to include only the transferred depreciated original cost of plant in its rate base; this was approximately $46,000.

The acquisition resulted in customers of Sunset Vista paying water rates applicable to an adjacent service area of California Water. Thus, the short-term effect of the merger was a rate increase of nearly 40 percent for Sunset Vista customers. However, it is noted in the California PUC decision that rates would have increased at least that much without the acquisition.

This acquisition was motivated by California Water's desire to increase its customer base and service area, and thus attain economies

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[3] In all instances conjecture is the result of the author asking the parties of the merger, "What if ...." Due to the speculative nature of their responses, the parties requested anonymity.

associated with a larger scale of operations. California Water had a service area contigous to that of Sunset Vista. This acquisition was also motivated by the debilitating illness of the owner of Sunset Vista.

In this case, it should be noted that the merger occurred under conditions in which the purchase price substantially exceeded net book value and without the excess acquisition cost permitted in the rate base of California Water. It may be that the rate base treatment of the excess acquisition cost was not an important factor, given its relatively small magnitude. One can also speculate that without this acquisition, Sunset Vista would have continued to provide water service, but with ineffective management and the potential for serious operational problems.

The California PUC did not explore any alternatives to this merger since the potential acquirer provided service in an adjacent area and had the financial resources necessary for Sunset Vista operation.

## Florida

Kingsley Service Company (approximate annual revenues of $2.4 million) acquired Heritage Farms System (approximate annual revenues of $11,000). The merger was initiated by Kingsley. The Florida Public Service Commission (PSC) approved this merger on May 14, 1985.

Heritage Farms was characterized by poor record keeping, poor management, operating losses, deficient maintenance, and numerous complaints to the Florida PSC. Heritage Farms provided water and sewerage service to approximately forty-five residential customers.

The acquisition price was $10, which was minimal relative to the net book value (depreciated original cost) of Heritage Farms plant; the net book value was approximately $98,000. The full $98,000 was permitted in the rate base of Kingsley.

The acquisition resulted in the customers of Heritage Farms continuing to pay the same rates as before the merger. That is, the short-term effect of the acquisition was stable rates for the customers of Heritage Farms.

This acquisition was motivated by Kingsley's desire to expand its customer base and service area and attain efficiencies associated with a

larger scale of operations. The service area of Heritage Farms was located near the existing service area of Kingsley. This acquisition was also motivated by the desire of the owner, a financial company that had foreclosed on the previous owners of Heritage Farms, to no longer continue to operate the water system. This acquisition was facilitated by the acquisition price being minimal, relative to the addition to the Kingsley rate base.

In this particular case, one can surmise that if the acquisition price only had been permitted in the rate base of Kingsley, the merger would not have taken place. One can also conjecture that without this acquisition, Heritage Farms would have continued to operate, but with continued poor service and substantially deferred maintenance.

The Florida PSC did not explore any alternatives to this merger since it appears that this merger was a logical solution to the operating problems of Heritage Farms. The Florida PSC has consistently deregulated small water utilities with less than 101 population served (or 30 connections).

## Idaho

Boise Water Company (approximate annual revenues of $5.5 million) acquired Hillcrest Water Corporation (approximate annual revenues of $11,000). The merger was initiated by the Idaho Public Utilities Commission (PUC), which approved this merger on March 20, 1985.

Hillcrest was characterized by poor water quality, poor water service, operating losses, well failures, and numerous customer complaints to the Idaho PUC. Hillcrest had seventy-two residential customers.

The acquisition price was $20,000, which exceeded the net book value (depreciated original cost) of Hillcrest plant by $17,000. However, Boise was permitted to include the entire purchase price in its rate base. In addition, Boise was allowed to collect the $17,000 excess acquisition cost via a monthly surcharge imposed on Hillcrest consumers over a 3-year period. The effect of this surcharge was to amortize the excess acquisition cost over 3 years. The revenues from this surcharge

are to be considered as contributed capital and are to be applied to future capital improvements in the Hillcrest system.

The acquisition resulted in Hillcrest consumers paying the approved rates applicable to Boise customers plus the surcharge. Thus, the short-term effect of the acquisition was a rate increase for Hillcrest consumers.

This acquisition was partially motivated by Boise's wish to expand its customer base, serve the entire Boise metropolitan area, and thus attain certain efficiencies associated with a larger scale of operations. This acquisition was facilitated by the inclusion of the excess acquisition cost in the rate base of Boise and by the related favorable rate treatment.

In this particular case, perhaps if only the net book value of assets had been permitted in the rate base of Boise or if the Idaho PUC had not assured Boise that rates would be adjusted in the future to finance a necessary $145,000 capital improvements program, this merger would not have taken place. One can also conjecture that without this acquisition, Hillcrest would have been forced to redrill a failed well (resulting in a substantial rate increase).

The Idaho PUC did not explore any alternatives to this merger. The record noted that Boise was considered the only viable purchaser. However, the Idaho PUC recently approved the substitution of a variation of the operating ratio for traditional rate base regulation in a water rate case where the capital structure of that particular water utility was approximately 98 percent debt. The Idaho PUC provides guidelines for determining the acquisition price in cases where the acquisition price exceeds the net book value of plant.

## Illinois

Consumers Water Company (approximate annual revenues of $64.9 million), a non-utility holding company, acquired Park Forest South Utilities Company, Inc. (approximate annual revenues of $1.1 million). The sale to Consumers was initiated by Park Forest South. The Illinois Commerce Commission (CC) approved this acquisition on June 6, 1984.

Park Forest South was characterized by overcapitalization, operating losses, mediocre maintenance, and poor record keeping. Park Forest South was originally financed by the Department of Housing and Urban Development (HUD); the planned community eventually failed with only thirteen hundred customers connected to an extensive system built for a much larger customer base.

The acquisition price for Park Forest South was $3.3 million and some underdeveloped real estate. The Illinois CC permitted the treatment of $3.5 million of HUD debt (cancelled in 1982) as other paid-in capital. With this particular capital structure treatment, the potential rate base increment for Consumers is approximately $5.1 million; such treatment implies that the $3.5 million is investor-paid capital and could be interpreted as supporting its inclusion in the rate base of Consumers. However, it should be noted that the rate base matter is to be determined in a future rate case.

The acquisition had no short-term effect on rates as Park Forest consumers continued to pay the same rates as before the acquisition. However, a rate increase took place in late 1985.

This acquisition was motivated by Consumers' wish to expand its Illinois operation with resulting economies and sharing of costs. Kankakee Water Company (another Consumers subsidiary) provides water and sewer nearby and has a satellite operation near the service area of Park Forest South. This acquisition appears to have been facilitated by the potential rate base inclusion substantially exceeding the acquisition cost.

In this particular case, one can conjecture that if either the HUD debt had been treated as contributed (rather than as paid-in) capital or if only the purchase price only had been permitted in the rate base of Consumers, this merger would not have taken place. It is also possible that without this acquisition, Park Forest South would have continued to operate, but with deficient revenues and inexperienced management.

The village of Park Forest South (now University Park) reportedly expressed an interest in acquiring Park Forest South; however, the municipality ultimately decided not to purchase the water and sewer utility. The Illinois CC, in its experience with water utilities

entering receivership, has found that receivership perpetuates the problem of poor operation due to insufficient revenues.

Subsequent to the acquisition, the operation of Park Forest South (now Consumers Illinois Water Company) has been kept separate from Kankakee.

## Maryland

Utilities, Inc. of Maryland (assets exceeding $100.0 million), a subsidiary of Utilities, Inc., acquired First Maryland Utilities, Inc. (approximate annual revenues of $220,000). The acquisition was initiated by First Maryland. The Maryland Public Service Commission (PSC) approved this acquisition on April 19, 1985.

First Maryland was characterized by inadequate records, poor water quality, poor management, insufficient capital, operating losses, deficient maintenance, and numerous customer complaints to the Maryland PSC. First Maryland provided both water and sewerage service.

The acquisition price was $200,000 as compared to the net book value (depreciated original cost) of First Maryland plant of $2.5 million. The rate base of First Maryland, after deductions for contributions in aid of construction, was established at $56,000. Utilities, Inc. was permitted to include the excess acquisition cost of $143,000 in its rate base and amortize over 33 years.

Utilities, Inc. was required to maintain the existing First Maryland rates for a minimum of one year from the date of the merger. Thus, the short-term effect of the acquisition on customers of First Maryland was stable rates. However, mandatory system improvements will probably cause rates to increase in the future.

This acquisition was motivated by the reluctance of First Maryland to make the necessary and substantial capital improvements in the water and sewerage systems. This acquisition was also motivated by Utilities, Inc.'s desire to expand its existing organization in the Maryland/ Virginia area. This acquisition was facilitated by the inclusion of the excess acquisition cost in the rate base of Utilities, Inc.

In this particular case, if the net book value only (less contributions in aid of construction) of First Maryland plant had been

permitted in the rate base of Utilities, Inc., it may be that the merger would not have taken place. One can also conjecture that without this acquisition, First Maryland would have been required to make substantial capital improvements to upgrade system operation.

The Maryland PSC did explore some alternatives to this merger, including municipal acquisition of First Maryland as well as forcing First Maryland to upgrade existing facilities. The latter was determined to be financially impractical while the former was precluded by the Utilities, Inc. acquisition. Under Maryland statute, receivership and bankruptcy for water utilities can have a positive effect, in that the end result is generally a public (e.g., municipal) takeover of the nonviable water system. Recently, regulation of small water utilities has been relaxed for firms with less than $100,000 in annual revenues.

## Massachusetts

Hingham Water Company (approximate annual revenues of $2.5 million), a subsidiary of American Water Works Company, acquired Nantasket Beach Water Works Company (approximate annual revenues of $18,200). The merger was initiated by Hingham. The Massachusetts Department of Public Utilities (DPU) approved this merger on February 20, 1986.

Nantasket was characterized by poor management, deficient maintenance, increasing liabilities, and low return on investment. Nantasket served forty-seven residential customers plus one public authority. Nantasket owned no source of supply and no pumping or storage facilities. Under an agency arrangement, Hingham had supplied water and had provided collection, repair, and other services to Nantasket since 1974.

The acquisition price was $12,500. This was substantially less than the approximately $44,400 of plant at depreciated original cost transferred from Nantasket to Hingham. Hingham also requested that an acquisition adjustment of approximately $20,200 (noted in the record as equal to the difference between the actual cost of acquisition and the plant book value) be amortized over a 10-year period. The Massachusetts DPU deferred this matter to a future rate hearing.

Since rates for Nantasket consumers had been identical to those for Hingham consumers since 1975, the acquisition had no short-term effect on rates.

The acquisition was motivated by the owners of Nantasket no longer being interested in the water system operation. The acquisition was also motivated by Hingham's desire to increase its customer base and service area and thus achieve efficiencies associated with a larger scale of operations. The service area of Hingham surrounded that of Nantasket. Under its agency arrangement, Hingham had the responsibility (and associated liability) of providing adequate water service; the acquisition permitted Hingham to gain control of physical assets that were being allowed to deteriorate. The acquisition was facilitated by the acquisition price being substantially less than the depreciated original cost of plant.

In this particular case, it may be surmised that if the acquisition cost only had been permitted in the rate base of Hingham, this merger would still have taken place, given its relatively small cost to the acquirer. Another conjecture is that without this acquisition, Nantasket would have experienced decreasing water quality and further system deterioration.

The Massachusetts DPU did not explore any alternatives to this merger. It should be noted that, in this case, the Hingham provision of central management services did not eliminate the necessity of the acquisition.

## New Jersey

Elizabethtown Water Company (approximate annual revenues of $57.8 million) acquired Kingston Water Company (approximate annual revenues of $13,000). The merger was initiated by Elizabethtown. The New Jersey Board of Public Utilities (BPU) approved this merger on February 3, 1986.

Unlike many small water utilities that are acquired by larger water utilities, Kingston was not characterized by insufficient capital, operating losses, poor maintenance, and so forth. Kingston served approximately 240 customers.

The acquisition price was $100,000, and the net book value (depreciated original cost) was approximately $56,000. The treatment of the acquisition cost adjustment of $44,000 was deferred by the New Jersey BPU until a future rate proceeding. At that subsequent rate proceeding, the excess acquisition cost was excluded from the rate base of Elizabethtown.

Kingston customers continued to pay the same rates as before the merger. Thus, the short-term effect of the acquisition was stable rates. However, in the next rate case, Elizabethtown moved toward bringing the Kingston rates into line with its own tariff.

This acquisition was motivated by the long-term plan of Elizabethtown to increase its customer base and provide service to a rapidly growing area. The service area of Kingston is contiguous to the service area of Elizabethtown.

In the case of the Kingston acquisition, one can conjecture that the treatment of the excess acquisition cost was not a critical factor in facilitating this merger since the dollar amount involved was relatively small. One might infer that without this acquisition, Kingston would have continued to provide adequate water service to its small customer base. However, given its small scale, the Kingston customers possibly would have paid higher future rates than they will as customers of Elizabethtown.

The New Jersey BPU did not explore any alternatives to this merger. The record indicates that those investor-owned water utilities in serious financial trouble in New Jersey have already been acquired by municipalities that have placed them outside New Jersey BPU jurisdiction. That is, New Jersey appears to be one state where the problem of the small, financially troubled water utility is being eliminated.

## New Mexico

Sangre de Cristo Water Company (approximate annual revenues of $8.0 million), a subsidiary of Public Service Company of New Mexico, acquired Acre Estates Water Works. This merger was initiated by Acre Estates. The New Mexico Public Service Commission (PSC) approved this merger on December 7, 1981.

Acre Estates was characterized by poor record keeping, inadequate capital, poor management, low rates of return on investment, and numerous complaints to the New Mexico PSC. Acre Estates was in a state of disrepair; the firm had difficulty billing customers properly due to inoperable meters as well as unmetered connections. The end result was that the firm had been unable to generate the necessary data to apply for rate increases and capital improvement financing. Acre Estates served approximately 180 customers.

The acquisition price was $61,000, which exceeded the net book value (depreciated original cost) of Acre Estates. The net book (appraised) value of Acre Estates plant (the increment to the rate base of Sangre de Cristo) was approximately $45,700. The acquisition cost in excess of depreciated original cost was not permitted to be included in rate base.

The acquisition resulted in customers of Acre Estates paying the same rates as Sangre de Cristo customers in the Santa Fe area. Thus, the short-term effect of the merger was a rate increase for Acre Estates customers.

This acquisition was motivated by the owners of Acre Estates no longer being interested in the water service business. It was also motivated by Sangre de Cristo's desire to expand its customer base and service area and thus attain certain economies associated with a larger scale of operations. The service area of Sangre de Cristo virtually surrounded that of Acre Estates. This acquisition was facilitated by the inclusion of valuable water rights in the transaction (the appraised value of the acquisition was approximately $240,000).

In this particular case, it could be that, given the inclusion of the valuable water rights, the exclusion of the excess acquisition cost from the rate base of Sangre de Cristo was not an important factor in facilitating this acquisition. Without this acquisition, it seems reasonable to infer that Acre Estates would have continued to operate; however, it would have been unable to finance the substantial capital improvements (estimated at $290,000) necessary to maintain adequate future system operation.

The New Mexico PSC did not explore any alternatives to this merger since it appears that this merger was a logical solution to the operating problems of Acre Estates.

## North Carolina

Carolina Water Services Systems, Inc. (approximate annual revenues of $2.9 million), a subsidiary of Utilities, Inc., acquired Mecklenberg Utilities, Inc. (approximate annual revenues of $176,000). The merger was initiated by CWS Systems. The North Carolina Utilities Commission (UC) approved this merger on February 4, 1984.

Mecklenberg was characterized by poor water quality, poor management, inadequate capital, neglected system maintenance, and numerous complaints to the North Carolina UC.

The acquisition price was $100,000, which exceeded the net book value (depreciated original cost) of Mecklenberg plant by approximately $15,000. The excess acquisition cost was eventually included in the rate base of CWS Systems.

The acquisition resulted in Mecklenberg customers continuing to pay the same water rates as before the merger. Thus, the short-term effect of the acquisition was stable rates. However, in the long-term, water rates did increase. One can conjecture that the rate increase was directly related to a capital improvements program.

This acquisition was motivated by CWS Systems' wish to increase its customer base, expand its service area, and achieve certain efficiencies associated with a larger scale of operations. This acquisition was facilitated by the inclusion of the excess acquisition cost in the rate base of CWS Systems.

In the case of Mecklenberg, one can conjecture that if the net book value of assets only had been permitted in the rate base of CWS Systems, this acquisition would still have taken place given its relative smallness. It seems likely that without this acquisition, Mecklenberg would have continued to operate, but with continued poor water quality, deficient system operation, and without the capital funds necessary for mandatory capital improvements (predicted to be in excess of the acquisition price).

The North Carolina UC did not explore any alternatives to this merger since no other solutions were available to finance the needed capital improvements and deferred maintenance. The North Carolina UC has partially deregulated small water utilities; water systems with less than ten customers are not regulated. In addition, the North Carolina UC has extensively employed the operating ratio as a substitute for traditional rate base regulation in small water utility rate cases.

## South Carolina

Hughes Water Systems, Inc. acquired a water system (Bellmead Subdivision) owned by Bobo Well and Pump Company. The merger was initiated jointly by the South Carolina Public Service Commission (PSC) and Bobo. The South Carolina PSC approved this merger on March 24, 1986.

Bellmead was a good example of a rundown water system. It was characterized by inadequate capital, poor water quality, poor management, deficient maintenance, operating losses, and numerous complaints to the South Carolina PSC. Bobo was seeking to abandon Bellmead; however, the South Carolina PSC does not permit system abandonment without a prior arrangement of an alternative source of supply for the abandoned customers. Bellmead served approximately seventy customers.

The acquisition price for Bellmead was $13,000. Bellmead plant was transferred to Hughes and included in its rate base at net book value (depreciated original cost), an amount less than $13,000. However, since the South Carolina PSC employs the operating ratio in small water utility rate cases, the regulatory treatment of the acquisition cost was not critical in this case.

The acquisition resulted in Bellmead customers continuing to pay the rates approved for the service areas of Hughes. Thus, the short-term effect of the acquisition was stable rates for Bellmead customers, as Hughes had been providing them water service since 1983.

This acquisition was motivated by Hughes' desire to expand its customer base and service area and attain certain efficiencies associated with a larger scale of operations. The acquisition was also motivated by the seller's substantial debt to Hughes.

In this particular case, one can speculate that if the South Carolina PSC had not provided assurance to Hughes of future rate adjustments adequate to finance mandatory capital improvements, this merger would not have taken place. One can also conjecture that without this acquisition, Bellmead would have continued to operate as part of Bobo, but with continued poor operation and poor service.

The South Carolina PSC did explore alternatives to this merger but found that no other investor-owned utility or municipality was interested in acquiring Bellmead. The South Carolina PSC has extensively employed the operating ratio as a substitute for traditional rate base regulation in small water utility rate cases.

## Vermont

Sunshine Water Company acquired four water systems (Countryside Estates, Killington Heights, Pico Villa, and Mountain View Estates) in January 1985. These four systems had approximate annual revenues of $3,000. Sunshine was formed for the specific purpose of facilitating these acquisitions; Sunshine initiated the merger process. The Vermont Public Service Board (PSB) approved these acquisitions on January 21, 1985.

The Estates were characterized by poor record keeping, inadequate capital, operating losses, poor management, poor maintenance, and numerous customer complaints to the Vermont PSB. The Estates served approximately 110 unmetered customers.

The acquisition price was $30,000 and was to be paid over a 10-year period. The acquisition cost was not included in the rate base of Sunshine. Subsequent to the merger, the net plant for Sunshine was approximately $5,200; this was the amount included in its rate base. The acquisition resulted in no change in rates for the Estates customers, at least in the short term.

The acquisition was motivated by Sunshine's wish to have as large an initial customer base and service area as feasible, thus realizing certain economies associated with the larger operation. In this particular case, the merger occurred under conditions in which the acquisition price substantially exceeded the book value of assets

(depreciated original cost) and in which the excess acquisition cost was not permitted in the rate base.

Without this acquisition, the Estates probably would have continued to provide water service under conditions of poor service, deficient maintenance, and continued operating losses.

The Vermont Department of Public Service, who represented the water customers in this proceeding, did not explore any alternatives to this acquisition as it was apparent that this particular merger was in the public interest.

## Overview of Case Studies of Private Acquisitions

Twelve acquisitions of investor-owned water utilities by other investor-owned water utilities were examined. It is instructive to summarize these twelve cases on the basis of similarities, short-term effects on rates, and acquisition motivations.

Eleven of the acquired investor-owned water utilities were small, financially troubled firms with characteristics such as poor record keeping, inadequate maintenance, poor management, poor water service, and operating losses. Two of the acquired utilities had grossly overbuilt systems relative to actual customers served.

The short-term rate effect in the majority of the acquisitions was stable rates for the acquired system customers. In ten of the acquisitions, the acquired system customers continued to pay the same rates as before the acquisition. However, the regulatory records indicate that water rates will increase in the near future in several cases as a result of the mandatory capital improvement programs being initiated by the acquiring water utility.

Eleven of the acquisitions were primarily motivated by the acquiring utility's wish to increase its customer base and service area and thus to attain economies and efficiencies generally associated with a larger scale of operations. In these cases, the service area of the acquiring utility was generally located near or adjacent to the existing service area of the acquired water system. In the other case, the acquiring firm simply wished to expand its existing organization into the particular geographical area in which the acquired system was

located. In one case, an additional motivating influence was the desire of the acquiring utility to gain control of the deteriorating system of the acquired utility, that is, the acquirer was the wholesale supplier for the acquired and was liable for the decreasing water quality of the acquired system. In another case, the acquired utility received valuable water rights in the merger transaction.

For the acquired systems there were several acquisition motivations. In two cases, the mortgage or financial firms (who had foreclosed on the original owners) wished to get out of the water service business. In two other cases, the owners of the acquired systems were no longer interested in the water service business. In another case, the owner was suffering from a debilitating illness. Finally, the owners of one acquired system were reluctant to make the substantial and necessary capital improvements to the water system.

There were financial and regulatory factors that facilitated some of the acquisitions. In three cases, the acquisition price was substantially less than the increment (i.e., depreciated original cost of the acquired system plant) to the rate base of the acquiring utility. For example, in one case, the acquisition "cost" was the nominal sum of $10; in another case, the "cost" was the assurance of guaranteed water supply. In four cases, the acquisition cost in excess of depreciated original cost was permitted to be included in the rate base of the acquirer.

In the four cases in which the excess acquisition cost was included in the rate base of the acquirer, one conjectures that in three of these cases, the acquisition would not have taken place without the favorable rate base treatment. In the remaining case, one conjectures that the acquisition would still have taken place in the absence of the favorable rate base treatment, given the relatively small excess cost to the acquirer.

Finally, in the four cases in which the purchase price substantially exceeded net book value (depreciated original cost) of the acquired plant and in which the excess acquisition cost was excluded from the rate base of the acquirer, one generally conjectures that the rate base treatment of the excess acquisition cost was not an important

acquisition variable, given the relatively small magnitude of the excess cost to the acquirer.

CHAPTER 5

# PUBLIC MERGERS AND ACQUISITIONS OF SMALL WATER UTILITIES

The survey discussed in chapter 2 produced some unanticipated merger patterns for troubled small water companies. In an important way, the number of troubled water companies is diminishing without any particular effort on the part of state commissions or investor-owned utilities. The major reason for the demise of small water companies is their absorption into public water systems. Public mergers are those that are categorized in the survey as being completed by municipalities, counties, or water and sewer districts. Since these involve a public agency, they are simply referred to throughout this chapter as public mergers.

Recent legislation and new regulatory policies in several states may possibly accelerate the resolution of small troubled water company problems in those states. And because of the limited potential of the major, investor-owned water utilities in pursuing many of the acquisition candidates, the future direction of merger activity of the small investor-owned companies may continue to reflect its historical pattern. This chapter analyzes some of the reasons for the growth of public takeovers and concludes with a review of legislative and commission efforts to resolve the small water company issue.

## Overview of Written Survey Results on Merger Activity

Table 5-1 summarizes survey data with respect to the merger patterns in each state. The results shown in table 5-1 are somewhat surprising since they indicate that the majority of changes in status over the past four years involved public mergers. The responses indicated that 500 water utilities changed status, for example, 229 through public merger and 165 through private merger. Table 5-1 also shows that 25 states reported public merger activity and 18 reported private merger activity. However, of the 165 private mergers, 46 of these occurred in North Carolina with the remainder largely concentrated in Arizona, California, and Louisiana. Those occurring in Illinois

TABLE 5-1

RANKING OF WATER COMPANY MERGERS BY STATE, 1982-1985

| State | Number of Companies Under Jurisdiction | Mergers | |
|---|---|---|---|
| | | Private | Public |
| 1. New York | 455 | 0 | 15 |
| 2. Arizona | 363 | 16 | 16 |
| 3. Florida | 320 | 7 | 4 |
| 4. N. Carolina | 303 | 46 | 20 |
| 5. Pennsylvania | 303 | NA | NA |
| 6. California | 269 | 15 | 29 |
| 7. Louisiana | 133 | 17 | 11 |
| 8. Connecticut | 89 | 0 | 0 |
| 9. Mississippi | 74 | 12 | 17 |
| 10. Missouri | 74 | 2 | 8 |
| 11. New Jersey | 73 | 2 | 8 |
| 12. Virginia | 67 | 0 | 8 |
| 13. Vermont | 66 | 3 | 0 |
| 14. S. Carolina | 58 | 8 | 13 |
| 15. Illinois | 55 | 12 | 10 |
| 16. Massachusetts | 47 | 1 | 3 |
| 17. New Mexico | 41 | 1 | 0 |
| 18. Oklahoma | 33 | 0 | 4 |
| 19. Kentucky | 29 | 0 | 8 |
| 20. Maryland | 29 | 1 | 3 |
| 21. Maine | 28 | 0 | 0 |
| 22. Ohio* | 24 | 0 | 6 |
| 23. Idaho | 22 | 5 | 2 |
| 24. Montana | 21 | 2 | 8 |
| 25. Nevada | 19 | 0 | 5 |
| 26. Utah | 17 | 0 | 4 |
| 27. Alabama | 15 | 0 | 1 |
| 28. Alaska | 14 | 4 | 6 |
| 29. Delaware | 14 | 0 | 0 |
| 30. Wyoming | 13 | 0 | 1 |
| 31. Wisconsin | 12 | 0 | 4 |
| 32. Colorado | 10 | 0 | 0 |
| 33. Arkansas | 7 | 2 | 1 |
| 34. Kansas | 7 | 0 | 0 |
| 35. Tennessee | 7 | 0 | 4 |
| 36. Hawaii | 5 | 0 | 0 |
| 37. Iowa | 3 | 0 | 0 |
| 38. Rhode Island | 3 | 0 | 1 |
| 39. Michigan | 1 | 0 | 1 |
| TOTAL | 3,527 | 165 | 229 |
| Total change in status 1982-1985 | 500 | | |
| Total mergers | 394 | | |
| Other | 106 | | |

Source: 1986 NRRI Commission Water Survey

*The Ohio number of twenty-four does not match the number of companies (forty-two) referred to later. However, the Consumer's Counsel study referred to later treats each subsidiary of a water utility holding company as an individual entity which explains part of the difference; and some of the companies in the Consumers' Counsel study were removed from jurisdiction in 1985.

actually were two mergers, involving a large number of companies being merged into one corporate entity. Some of the private mergers involved the largest water utility holding companies in the United States.

Unfortunately, with respect to the possibility of more private takeovers by the large water utility holding companies, it should be noted that between 1980 and 1985, the twenty largest water companies completed only twelve mergers; and since 1976, they have completed only twenty-two mergers (Moody's Public Utility Manual 1985). Many of these takeovers were performed within states where the holding company already had subsidiaries. For example, of the twelve private mergers by these large firms, seven were completed by Southern California Water Company.

Some of the large companies do have acquisition plans as part of their corporate strategy. However, among the many we reviewed, only the largest two companies, American and Consumers, indicated that acquisitions are important to their future growth. Illustrative is the position of American Water Works Company, as summarized in its 1985 Annual Report:

> For many years, the water utility industry has focused its efforts on extending service to expanding areas on the periphery of existing systems. The emphasis now has shifted to preserving water quality. This new initiative is made necessary by the contamination of our nation's underground aquifers and surface waters from indiscriminate industrial waste disposal and agricultural runoff. Continued vigilance and substantial capital investment will be required in the next decade to protect the public from this contamination (American Water Works Company, Inc. 1985, 2).

In the same report, American indicated its limited ability to absorb small water companies when it noted that:

> In recent years, we have worked to develop our subsidiaries as regional water suppliers. The concept of regional management of water resources has become increasingly important in the industry and government. Regionalization requires an aggressive program of acquiring small suppliers serving areas contiguous to ours (Underlining added). (American Water Works Company, Inc. 1985, 2)

There are, however, only a limited number of such small, contiguous systems throughout American's territory.

Consumers Water Company, the second largest holding company, expressed its intention regarding new acquisitions in its recent Annual Report: "Consumers continued its program of seeking out water utilities for acquisition." But it noted later that acquisitions and mergers may be restricted by factors such as regulatory climate. Regarding this issue, Consumers stated that:

> We will, however, continue to exercise discretion with regard to the regulatory climate in the states where we invest stockholders' money. In the States of Maine and New York we feel compelled to simply maintain our present level of service and minimize the degree of any additional investment (Consumers Water Company 1985, 7).

It is evident that there are constraints on the number of acquisitions that these two large firms will be making in the next few years. Moreover, the strategy of these companies and most holding companies is to select "good" acquisition candidates; that is, those operating profitably in growing areas. Small, troubled water companies are simply not very attractive candidates for acquisition by these large firms. This partially explains why so many mergers have been completed through public acquisition. Given the relatively slow rate at which these large firms have acquired small firms in the past, there is little expectation that the "troubled" water company problem will be resolved through the efforts of large, investor-owned water holding companies.

## What Important Trends Do the Data Show?

Not only do the survey data suggest that public mergers are occurring more frequently than private mergers (at a rate of approximately two to one in most states), but the data also indicate that the small, troubled water company problem could be resolving itself over time. Between 1982 and 1986, approximately five hundred dissolutions and mergers occurred; this excludes Florida where possibly an additional

fifty may have occurred.[4] This represents almost 14.2 percent of the regulated water companies reported in the survey. However, it represents a much larger percentage of the small water companies, which are the focus of this study. If these changes in status were concentrated in the two smallest categories of water companies, it would represent anywhere from 20 to 36 percent of the total of these two groups, depending on how the allocations for Arizona, Florida, Louisiana, New York, and Pennsylvania are made. Assuming that this rate of change continues, especially among the smaller water companies, it seems logical that the number of small (and most of the troubled) water companies could greatly diminish.

## Why So Many Public Takeovers?

As noted, the original intent of this report was to find ways of improving the potential for private firms acquiring private firms; thus it was surprising to observe the large number of public mergers. Because of this, a considerably larger effort was devoted to the analysis of public acquisitions than was originally planned. A telephone survey was employed to provide insight into the public merger activity. Those states having relatively large numbers of public mergers were surveyed. These included Arizona, California, Florida, Illinois, Mississippi, New Jersey, New York, North Carolina, Ohio, South Carolina, and Virginia. Municipal water department officials in Columbus, Ohio were also interviewed since Columbus is experiencing rapid growth and has a large number of privately owned water companies surrounding it.

While our goal was to develop useful "case studies" similar to those developed for private mergers, such case studies could not be generated for several reasons; a main one being that states do not monitor and involve commission staffs in public merger negotiations to

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[4] The decline in numbers is exemplified in California where the number of regulated companies went from 500 in 1968 to 295 in 1984. Of the remaining 295 companies, 200 have annual revenues under $50,000. The decrease was largely due to public takeovers.

the degree that they get involved in private transactions. Consequently, very little documentation exists within commission files for most of the municipal, county, or water district mergers. These documents are only accessible from municipal, county, and water district files. Given the limited time available, we did not access these records.

Ohio may be an exception to the above conclusion in that the commission is partially involved in each abandonment procedure. For example, the questionnaire required from all applicants for abandonment in Ohio is attached as appendix C. It contains questions that are the subject of public hearings. To the degree that applicants must file a response to the questionnaire and possibly be subject to examination about its responses, the Ohio commission does get involved. Most state commissions issue an Opinion and Order in each certificate transfer but these are usually somewhat brief or even perfunctory for public transfers. For example, in California only "unfriendly" public mergers come before the PUC, and these can also be taken to the Superior Court instead of the PUC.

Public Mergers are a Result of the Process of Urban Expansion

Before we analyze the results of the telephone survey, it may be useful to consider the life history of the "typical" small water company. The typical small water company comes into existence in tandem with a housing development surrounding a large city. In the words of one state official interviewed, "people want to live out away from the hustle of city life." Without access to municipal or county water service, the developer is forced to construct a water distribution system, the cost of which is factored into the price of the houses. Once the homes are sold, the developer has little or no incentive to keep or maintain the water system. Thus, a troubled water system is born. Over time, as we learned from many state officials, a natural growth process occurs and, as the city or county expands, it extends it distribution lines outward and offers to absorb the "outsiders." The "outsiders" generally accept the offer to become annexed to the public water supply system since they frequently obtain a mix of municipal or

county services including fire and police protection, sewer facilities, and other services. The cycle continues, and before long another water system is created for new "outsiders." Soon it develops into a troubled water system. With some change in local flavor, this is the typical pattern of development of the small water company. There are obviously many water companies organized for profitable purposes that continue to thrive, but these by definition are not the companies that fall under the label of "troubled".

Figure 5-1 can be used to illustrate the typical life cycle of the small water company. It also provides us with an example of why and how the problem is resolving itself in Ohio with little or no commission pressure. Figure 5-1 shows the location of the forty-two privately owned water companies operating in Ohio in 1984. Most are independently owned, but the largest and most successful ones are subsidiaries of American Water Company or Comsumers Water Company. Except for a few isolated ones, most are contiguous to large or moderate size cities, i.e., they are generally clustered around cities. Only twenty of these companies earned positive profits in 1984 with most experiencing losses for several years. Consumers and American subsidiaries were the most successful of all the Ohio companies in 1984. These firms typically serve relatively large areas surrounding large cities (e.g., Cleveland) or are the sole suppliers for moderate-size cities (e.g., Tiffin).

Figure 5-1 graphically illustrates the genesis of these firms and also suggests that the natural parent of these small water companies is the surrounding municipality or county. Those that have filed for abandonment status under Ohio commission regulations have been absorbed by these surrounding public water systems. This pattern is summarized in table 5-2 that lists the acquired and acquiring water systems for most of the Ohio merged companies over the period of 1980-1985. A (P) after the acquiring entity indicates a public merger. Most acquirers were public, three were associations, and none were private. All of these water companies were removed from commission jurisdiction in Ohio--a desirable outcome.

Ohio is typical of the pattern of municipal and county growth that results in absorption of these small water systems. From interviews with other states, we have determined that Ohio is representative of

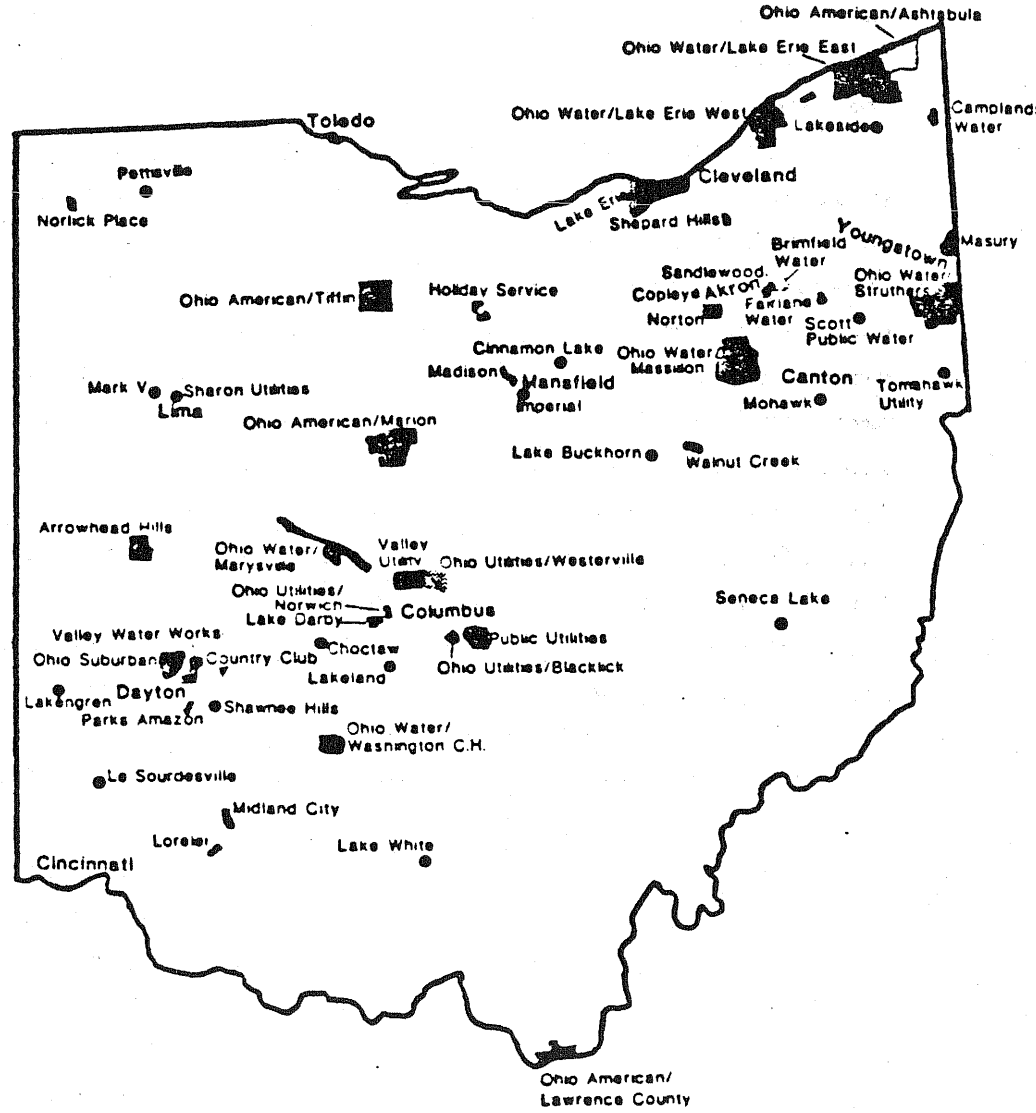


Fig. 5-1. Location of Ohio's privately owned water companies

Source: Ohio Consumers' Counsel, 1985

TABLE 5-2

ACQUIRING AND ACQUIRED WATER COMPANIES, OHIO, 1980-85

| Abandoned System | Acquiring System |
|---|---|
| Lesourdesville Water Co. | Butler Co. Water Dept. (P) |
| Scott Public Utilities | Franklin Hill Water Association |
| Midland City Water Co. | Highland Co. Water Co. (P) |
| Northwood Utility | Northwood Homeowners Association |
| Amazon Water Co. | Green Co. Commissioners (P) |
| Bailey Lakes | Village of Bailey Lakes (P) |
| Lakeside Utilities | Village of Roaming Shores (P) |
| Public Utility Serv. Co. | Fairfield Co. (P) |
| Pettisville Water Co. | Homeowners Association |

(P) = Public merger
Source: Public Utilities Commission of Ohio

their combined experiences. Figure 5-1 could likely be reproduced for most of the states we contacted. It provides a visual geographic aid for understanding the results of the telephone survey in other states and the conclusions reached concerning the past and future directions of public and private merger activity.

## Results of Telephone Survey Concerning Public Takeovers

It is easy to isolate reasons for private takeovers. Most private acquisitions are motivated by economic and financial factors. Acquiring companies, be they large holding companies like American Water Works Company and Consumers Water Company, or small acquirers, seek out profitable opportunities in their merger strategies. It is clear from reviewing the annual reports of the major water holding companies that prime acquisition candidates are usually those systems that have a record of positive earnings. The majority of small water companies are losing money and thus are not being pursued by big companies.

One cannot presume a single reason for public takeovers. The results of our telephone survey yielded a great variety of explanations and interpretations regarding public takeovers. Although some responses were very general, some were very specific to individual states. The responses are discussed in descending order of their importance; numerical frequencies are presented where possible. Numerical listings should be interpreted cautiously since many of the responses were opinions, estimates, and guesses, which were translated into generalized categories. There were actually twenty-five different topics under which responses were initially placed; however, these were collapsed into five categories. We also asked each interviewee to predict the future direction of merger activity in his/her state. These predictions are discussed later.

It should be noted that takeovers involve three parties: customers, present owners of the system, and potential owners. In any given takeover situation, the interests of these groups are often in conflict, and what satisfies one party may not satisfy the other parties. Commissions, as a rule, are most sensitive to customer concerns, but commissions simply do not get involved to any degree in many takeover negotiations. A specific takeover may have several winners or several losers. However, there was no attempt to specifically identify these groups in any state.

## Major Reasons for Growth of Public Takeovers of Small Water Companies

1. Geographic Proximity and Natural Absorption. Ten of the eleven states surveyed gave this as a primary reason for the growth of public takeovers. As illustrated in figure 5-1, there is a natural growth process in most cities and counties that eventually allows the city to extend its distribution lines to outlying areas formerly served by private water companies. Moreover, new customers were added to the base load for these systems and thus allowed the systems to achieve certain economies for which they were designed.

This is the most common explanation for public merger activity in every state, and while this does not seem to be a financial reason for public mergers, there is a financial aspect to it. Municipalities,

counties, and water and sewer districts have access to very cheap debt as well as a broad tax base for financing expansion. Unlike private water companies, the public water systems have enormous financial economies for these expansion programs. Availability of cheap debt and a broad tax base is especially helpful in explaining the growth of water districts and water authorities within some states, e.g., New York and Ohio. It has permitted these entities to become suppliers at the wholesale or retail level in many municipal areas. Illustrative of this type of expansion is the experience in New York where large cities have their own water systems, surrounded by county water authorities, surrounded in turn by water districts. In concentric circles, they increasingly supply water to nearby developments. Similar patterns exist in Arizona, California, Ohio, and other states.

The geographic proximity and natural absorption explanation is well illustrated by the experience of Roanoke, Virginia. In the late 1950s, there were approximately forty-five water systems surrounding Roanoke; today there are three public and two private systems. Most of the small private systems have been merged into county and city systems. This familiar pattern also occurs in Tucson; Prescott; and Sierra Vista, Arizona. Many of the persons interviewed related similar experiences in their own states and expect these trends to continue.

Natural absorption has its limits. Such factors as economic stagnation, outmigration, and so forth, will cause this process to work irregularly in various parts of a region or state. Excess water system capacity does exist in some urban localities where optimistic population projections have not materialized. Unfortunately, the natural absorption process provides little hope for the worst of the small water companies that are "far from anywhere." Moreover, there are public systems that are simply not interested in acquisition. Illustrative of this point is the conclusion of a California official:

> Municipal Takeover: A local or county government takes over by condemnation or agreement. A beautiful and complete solution, when a local or county government is willing to take over an ailing water utility. This situation is perhaps the best solution. However, not enough governments are interested in doing this (Franklin 1984).

With regard to those small systems that are rural and isolated, there is little hope among the state commission staff that they will be absorbed by private companies unless they have a sufficiently large customer base to be operated as a satellite by the larger systems. As mentioned previously, American Water Works Company is interested primarily in those systems that are contiguous to its various distribution systems. The small orphaned water system will always remain, but whether it will be troubled cannot be predicted, although trends in operating costs and health and other regulations will make these small rural systems even more distressed in the future. For example, the firm with the highest water tariffs in Virginia has fifteen hundred customers and 100 miles of lines, but it is located in a very rural area. Its chances for an agreeable takeover, should the need arise, are somewhat remote.

2. Public Agencies and Authorities Can Pay More and/or There Is No Incentive for Private Acquisitions. Nine states indicated that this was an important cause for public takeovers. In some states, there is a financial incentive for owners to sell to public agencies because public agencies can pay a higher price for the system than a private firm can. For example, under New York's condemnation statute the public agencies can pay "market value" when buying a private system. In California, municipalities often pay from two to five times book value for a private system.

Frequently these water systems are fully depreciated, have minimal book value, and are in need of substantial improvements. Often, contributed capital is a large part of the financing of private systems; however, contributed capital is not generally permitted in rate base for determining subsequent tariff increases and rates of return for private buyers. Public agencies are not under commission jurisdiction in most states, and, therefore, contributed capital or excess acquisition costs (prices above book value paid for a system) are not a deterrent to public agencies. In contrast, these are major deterrents to private mergers in most states. According to New York officials, these are the key factors in explaining the growth of public takeovers and total absence of private takeovers in that state over the past few years.

Not only do public agencies frequently pay more for a private system, the public water system often has lower tariffs and other charges than private water companies. In these instances, the sellers and the customers benefit financially. Lower municipal rates were mentioned by many state officials as a major incentive to customers involved in public mergers. Lower annual water bills are possible because municipal and other public systems have lower operating and financing costs per gallon of water sold. Related to this is a disincentive to private acquisition. Private firms in some states are permitted to charge differential rates to these newly acquired customers or to charge uniform statewide tariffs, which in some instances are higher for these small system customers than previous rates, for example, Illinois and North Carolina.

Frequently, small water company owners are desperate to get rid of a system and will sell at a very low price. It is not uncommon in some states for public agencies to acquire private water companies for practically no initial investment or to pay well below book value for the system. Moreover, in some states the public entity can condemn private water systems and take over the system with little investment, e.g., South Carolina.

Generalizations about the financial implications of public takeovers have many exceptions. For example, all private water companies are not inefficient, high-cost suppliers; neither are all public agencies efficient, low-cost suppliers. To illustrate this, tables 5-3 and 5-4 summarize some billing data from a recent study of Ohio water companies, both private and public (Dreese 1986). Table 5-3 presents annual water bills for municipalities on an "inside" and "outside" city basis. As in most states, cities in Ohio have differential rates for noncity customers. These so-called "surcharges" can be substantial, as shown in table 5-3. Private water customers merged into these cities would most likely be charged "outside" city rates. The average water bill for Ohio's private water companies is also shown and the private water bill of $186 compares favorably with the "outside" city bill of $201. Averages can, however, be deceiving.

Private water companies do compete with large municipal systems in Ohio, but there is little doubt that many private water companies in

Ohio and elsewhere do have relatively high water rates. As a general rule, large city water bills are lower in Ohio than private water bills, even for "outside" users. This is not generally true for medium and

TABLE 5-3

ANNUAL WATER BILLS FOR OHIO CITIES, 1984

| City Size | Annual "Inside" Water Bill | Annual "Outside" Water Bill | Average % Surcharge |
|---|---|---|---|
| Large (≥50,000) | $ 96 | $141 | 47% |
| Medium (10-50,000) | 133 | 230 | 73 |
| Small (5-9,999) | 136 | 197 | 45 |
| Smallest (<5,000) | 174 | 238 | 37 |
| AVERAGE PUBLIC | $143 | $201 | 51% |
| AVERAGE PRIVATE | | $186 | |

Source: Dreese, 1986

TABLE 5-4

THE FIVE HIGHEST PUBLIC AND PRIVATE WATER BILLS, OHIO, 1984

| City | "Inside" 1984 Water Bill | Private Co. | 1984 Water Bill |
|---|---|---|---|
| Genoa | $470 | Ohio Water/Marysville | $504 |
| Geneva | 405 | Lake White | 482 |
| Liberty Center | 402 | Ohio Water/Lake Erie | 448 |
| West Union | 380 | Country Club | 441 |
| Ashley | 368 | Ohio Water/Washington C.H. | 339 |

Source: Dreese, 1986

small cities in Ohio when compared to private firms, as illustrated in table 5-3. Just as there are some private water companies with high annual bills, there are many medium- and small-size cities that also have high annual water bills, as shown in table 5-4. To some extent, mergers involving large municipalities result in lower water bills; but mergers involving smaller municipalities are less likely to result in lower water bills for customers of abandoned small water companies. The

Ohio data are likely to be representative of many other states in this regard.

3. Public Takeovers Are Easier for Commissions. Nine states indicated that this explained many public mergers in their jurisdiction. It obtained the same number of responses as number 2 above.

A frequent comment was that private mergers are time-consuming, complex, and difficult to accomplish. In contrast, public mergers seldom involve state commissions except to the extent that some information is needed to simply transfer or cancel a certificate. There are minor jurisdictional and legal implications in certification procedures in each state that differ, but the degree of commission involvement is minimal. Negotiations between parties proceed in some instances without any notification to the commission. Eventually, a notice of cancellation is sent to the commission.

Since commissions do not regulate the new public owners of the merged systems, the problems associated with these private firms disappear for the commissions. There is thus considerable incentive for commissions to encourage public takeovers. For example, the California PUC adopted a resolution in 1979 that stated that the PUC will:

> ...support and promote the conversion of unviable or marginal water utilities to public ownership or their mergers with more viable entities when opportunities arise and their customer service is more likely to improve through such change than without it (Public Utilities Commission of California, 1979).

Under the "Small Water Company Takeover Act" of New Jersey, there is a definite trend in its interpretation by the Board of Public Utilities, that is, it requires takeover by the nearest and most capable water company. The "nearest and most capable" is subject to commission staff interpretation. Where there are competitors for the condemned system, staff judgments are critical, and, to date, it appears that public systems have been chosen. Future takeovers under the New Jersey law will probably continue to lean toward public acquisitions.

To the extent that sellers of small water systems want prices approaching "market values," this creates a presumption against commission participation. The feeling on the part of many sellers is

that they can strike better deals with cities and counties without commission staff intervention.

Another point that was conveyed many times relates to the fact that municipalities, counties, and water districts often can raise rates without regulatory hearings. This provides another incentive for public acquisitions in situations where private customers have little input. That is, a water district can request a property tax increase through the local court without seeking voter approval. Increases in operating costs, for whatever reason, are quickly passed along to the cities that purchase their water from the water district. Cities and counties can similarly raise tariffs with little voter involvement. This encourages the growth and expansion of public systems and provides a competitive disadvantage to private companies in the takeover process.

4. Good Private Water Companies Have Been Merged. This conclusion was reached in many states in reference to troubled water companies that remained troubled. While private mergers will continue, they are likely to be a small portion of total mergers simply because small and financially healthy water companies may not exist in many states. This point was discussed earlier with reference to the early warning system for identifying "troubled water companies."

To avoid leaving the impression that private water companies are not interested in mergers, it should be noted that there is competition in some states among private water companies. This is especially true in Arizona, Florida, Illinois, and North Carolina. But this is generally not the case in many states. The survey data on private mergers show that only four of the twenty-one acquired companies had annual revenues under $10,000. The average annual revenue of these twenty-one acquired companies was $310,203. However, the largest group of small utilities in our state survey includes those with under $15,000 annual revenues; these number over one thousand. As noted earlier, these small water companies tend to have large amounts of contributed capital and relatively low net book values. These two factors tend to discourage takeovers by the largest firms unless commissions are favorable in the treatment of these issues.

One of the leading water utility entrepreneurs argued in a recent presentation to commission officials that until commissions allow

depreciation of contributed capital, there will be fewer and fewer absorptions of small companies (Heater 1984). Whether commissions want to adopt this policy is questionable, particularly since this would continue to keep the small water companies under commission jurisdiction--an undesirable outcome in many states.

5. Other Reasons for Public Takeovers. In the telephone survey, other reasons were provided for the popularity of public takeovers. These reasons are unique to specific states or to specific mergers. There are, however, a few generalizations that apply.

a. Political pressure from customers and/or local public water departments. Customers in some areas want access to cheaper water rates and thus pressure local politicians for the extension of public water systems to their areas. This reason is probably tied to reason 1 on page 78 in that municipal or county expansion brings many potential services to suburban areas; water supply is one of these. There were several states that indicated that developers and local public officials sometimes arranged for mutually beneficial sales to public agencies.

b. Public water systems need and want more customers. This explanation also relates to the first reason given above but involves an eminent domain element in that some counties and cities are allowed to condemn or absorb local private water systems. They do so to achieve the customer base that will allow them to gain economies of scale.

c. Developers are now building to code and meeting zoning regulations, making municipal takeovers easier and more likely in the future. Apparently in some states, local zoning restrictions were lax in the past, and the private water systems that were built could not be absorbed into public systems. Developers now cooperate with city and county officials with the view that their private system will eventually be absorbed into the public system. Thus, these developers are anxious to provide water, sewer, and fire systems that meet codes and regulations.

d. Federal and state construction grants are available for public water and sewer systems. This argument was made by several officials, and it certainly makes the financing of increasingly expensive systems easier for public agencies. This may become a more important cause of public takeovers in the future.

The reasons presented above summarize the experiences of surveyed states regarding public versus private takeovers. What do these results suggests about future trends with regard to the demise of private troubled small water companies? This question was posed in the telephone interviews; the universal response was that future trends will reflect recent experiences regarding private and public takeovers. With few exceptions, it was predicted that takeovers in the future would be in the following order:

1. Municipal takeovers
2. County takeovers
3. Water district and/or association takeovers
4. Private takeovers

Thus, it is predicted that the future will repeat the past; possibly in an intensified fashion. As mentioned, the "small, troubled water company" problem is slowly being resolved through natural processes and without strong intervention on the part of most state commissions. However, there are some recent legislative and regulatory innovations that may accelerate the process.

## Legislative and Regulatory Changes Affecting Small, Troubled Water Companies

There have been numerous recommended legislative solutions to the problems associated with small private water companies. Recent legislation has given commissions in Arizona, New Jersey, and Virginia considerable leverage in solving the problems associated with small water companies; in Florida, new certification procedures are lessening the future problems in many areas of the state.

The New Jersey law was discussed briefly in chapter 3. Under New Jersey's "Small Water Company Takeover Act," the focus is on forcing compliance with health regulations. Small companies (defined as under one thousand customers) that cannot meet health and environmental standards are forced to merge with the nearest capable public or private water system. Public hearings are required, and the usual legal

proceedings are followed. Commission regulations regarding the Act were adopted in New Jersey in 1985, and the law is being presently applied in several cases. Financial incentives are provided for private takeovers. The emphasis of the legislation is to force small companies out of business and thereby minimize the commission's future involvement with these firms.

Virginia's recently passed "Small Water or Sewer Public Utility Act" (approved April 1, 1986) applies to water and sewer companies with annual gross revenues of less than $1 million (See appendix D). The focus of this law is to allow small water and sewer utilities to raise tariffs, make improvements, raise funds, and so forth, without commission approval and without the substantial legal and professional costs associated with these activities. Rate increases are permitted once each year without a hearing. Replacement cost depreciation, allowance of contributed capital in rate base, and interest charges above the line enable small firms to earn a rate of return competitive with larger firms and with other investment alternatives. The law essentially salvages many small water companies with a minimum of commission involvement and minimum cost to the companies. There is less emphasis on forcing takeovers as with the New Jersey law. Virginia's statute represents an innovative way to solve the small water company problem. Given its very recent approval, no documentation on its effects is available.

It is interesting to note that the approach of these two laws would as well be applicable to small water companies in most states. For example, of the forty-two individual companies in Ohio in 1984, only fifteen had more than one thousand customers and only nine had revenues exceeding $1 million. Almost all of the latter were subsidiaries of Consumers Water Company or American Water Company. Although the New Jersey and Virginia statutes focus differently on the water company problem, the provisions of either would apply and probably be welcome in most other states. Pressuring small companies to join larger systems (as in New Jersey) or bailing them out financially with minimal commission involvement (as in Virginia) are arguments heard from many regulators. It will be interesting to see which approach yields the most worthwhile results.

Recent legislation in Arizona permits water companies with annual revenues of under $50,000 to apply for tariff increases of 25 per cent annually without regulatory approval or hearings, as long as customer complaints are not substantial. The increase is effective 60 days after the filing. Arizona's reasoning behind the "60-day" rule was to eliminate numerous emergency rate increases. The effect of the rule is similar to the Virginia legislation, which removes financial pressure from some small companies and also reduces the commission involvement with these companies.

In Florida, counties can choose to be under the jurisdiction of the PSC. Currently, thirty-one of sixty-seven total counties are under jurisdiction of the PSC. Florida has begun to solve the small water company problem at the source, in the certification process. In those counties in which water companies are regulated, new housing developments must submit an extensive long range plan to the PSC indicating future revenues, costs, tariff levels, depreciation schedules, etc. The PSC reviews these and helps developers set realistic tariffs to achieve these long range goals. In this way, the system is not likely to be abandoned at the first sign of financial distress. The PSC monitors these new developments carefully. Florida officials are optimistic that future troubled water companies will be few.

Unfortunately, until statewide standards and mandatory regulations are adopted, troubled water companies will continue to be created and abandoned in those counties where state regulation has been rejected. However, there are counties in Florida, which, despite not being under state regulation, nevertheless make a substantial effort to carefully certify and monitor water companies. These tend to be counties with large and growing populations such as Dade and Sarasota. Florida, and to some extent California, are the only states surveyed where rigorous certification procedures are being used to resolve the small water company problems. Other states could easily use similar techniques to stop the problem at its source, that is, certification.

## Summary of the Interviews

While we did not establish precise guidelines for states in their attack on the small water company problem, we did provide some important insights into the problem and its solution.

Natural absorption by public agencies is reducing the number of small water companies. This most likely will continue in the future, regardless of the actions taken or not taken by state commissions. Acquisitions by large, investor-owned water companies will only reduce the water company population slowly, and in a only few states. To the extent that increased concern about water "quality" dominates water discussions over the next generation, it appears that public agencies will attain an even larger presence in takeover activities.

The substantial costs associated with maintaining water quality, finding new supply sources, and so forth, can be more easily absorbed by public agencies than by private companies. Costs of water provision are likely to discourage new developers from locating too far from established water systems. New health and environmental regulations are likely to apply to all water systems in the future, even though small systems have frequently been exempt in the past. Concern with water quality certainly constrains suppliers, especially private ones, regarding new customers and expansion goals. Small systems contiguous to large urban areas will continue to be absorbed by nearby public systems, and those in rural and isolated areas will continue to be a source of concern to customers and commissions. Undoubtedly, those persons who choose to "live out in the country" in the future will find the "water cost" of living out relatively high and will find the number of private water companies willing and able to supply water dwindling.

# CHAPTER 6

# CONCLUSIONS AND RECOMMENDATIONS

The purpose of this report is to assist state regulatory commissions in resolving the problems associated with small water utilities under their jurisdiction. The goal of this study was an examination of both the incentives and disincentives regarding the acquisition of small, financially troubled water utilities and the role of regulatory commissions in creating these incentives and disincentives. The regulatory issues linked with water utility acquisition include rate level impacts, rate structure redesign, and the treatment of acquisition costs in excess of depreciated original cost.

## Options for Acquisition Costs

In the case of substantial contributed capital and/or where the purchase price exceeds the net book value of assets, regulatory treatment of the excess acquisition cost can be an important factor in determining whether the acquisition is financially attractive to the potential acquirer. Obviously, the potential purchaser of a small, financially troubled water utility will be influenced by whether regulators permit full amortization and inclusion in the rate base of the acquirer versus no amortization and rate base exclusion of the purchase price in excess of depreciated original cost. However, regulatory commissions generally consider only two options in treating the excess acquisition cost, that is, rate base inclusion and amortization or complete disallowance. However, there are several regulatory options that lie between these two extreme treatments of excess acquisition costs; these options vary in their effect on present investors, present consumers, and future ratepayers.

RECOMMENDATION: Regulatory commissions should consider a wider range of options in their deliberations regarding the treatment of the acquisition price.

This recommendation is recognition that the necessary regulatory incentives to facilitate an acquisition vary from acquisition to acquisition.

## Documentation and Monitoring

The survey of state commissions indicates that a substantial majority of investor-owned water utilities have annual revenues of less than $15,000. Many of these small water firms are characterized by inadequate capital, poor water service, poor water quality, deficient maintenance, operating losses, and numerous customer complaints. The majority of state commissions surveyed do not regularly and/or formally document the existence of financially troubled water utilities in their jurisdiction.

RECOMMENDATION: State commissions should systematically monitor and document financially troubled water utilities.

The regulatory oversight could involve annual listings, periodic investigations, and routine plant inspections.

## Exploration of Alternatives

The survey also indicated that in the majority of the private acquisitions, state regulatory commissions did not explore any alternatives to the private merger. In the minority of cases in which alternatives were explored, the rationale for rejection of the alternatives ranged from the anticipated costliness to the undesirability of the specific alternative.

RECOMMENDATION: State regulatory commissions should thoroughly explore alternatives, such as public mergers, to the acquisition of a small financially troubled water utility by another privately owned utility.

This recommendation could also be expanded to include acquisitions involving public agencies.

## Peer Comparisons

The examination and experimental application of the widely employed failure prediction model known as the Zeta model clearly indicated that substantial modifications of existing failure prediction models are necessary prior to any successful application to water utilities. In

brief, investor-owned water utilities have different operating and financial characteristics than do manufacturing and retailing firms. An alternative early warning technique is peer analysis. This technique involves comparisons of operating and financial ratios. Obviously the prerequisite to the successful application of peer comparisons is the construction of the appropriate operating and financial ratios for investor-owned water utilities.

RECOMMENDATION: State regulatory commissions should adopt the peer comparison technique as a monitoring device for small financially troubled water utilities.

The time and funds required for the implementation of peer group monitoring is minimal.

## Treatment of Excess Acquisition Costs

Twelve recent acquisitions were examined in which the acquiring firm was an investor-owned utility. Nearly all of the acquisitions were motivated by the acquiring utility wishing to increase its customer base. For the acquired systems, there were multiple motives, including wanting to exit the water service business and the reluctance to make necessary capital improvements to the water system. Regulatory policy played an important role in a few of the private acquisitions. There is evidence in three of the four cases in which the acquisition price exceeded the depreciated original cost of the acquired plant and in which the excess acquisition cost was permitted in the rate base of the acquirer, that the acquisition probably would not have occurred without the favorable rate base treatment. In contrast, in the four cases in which the purchase price substantially exceeded the net book value of the acquired plant and in which the excess acquisition cost was excluded from the rate base of the acquirer, the rate base treatment of the excess acquisition cost was a relatively unimportant factor in the acquisition.

RECOMMENDATION: State regulatory commissions should adopt and maintain a flexible policy regarding the treatment of excess acquisition costs.

The flexible rate base treatment of excess acquisition costs is recognition that the importance of rate base inclusion varies from acquisition to acquisition.

## Legislation and the Regulatory Process

The survey indicated that public acquisitions are occurring more frequently than private acquisitions. The reasons for this trend include the close geographical proximity of the acquired utility and the public entity, the natural absorption of small water utilities by municipal growth, the tendency for municipalities and other public agencies to pay higher acquisition prices than investor-owned utilities, and the easier facilitation of public (as compared to private) acquisition. In addition, in a majority of states, public acquisition removes the acquired system (and its problems) from the jurisdiction of the state regulatory commission.

RECOMMENDATION: States should consider legislative solutions to the problems associated with small investor-owned water utilities.

These legislative solutions could follow the Virginia model where emphasis is on modifying the regulatory process to make it easier for small water utilities to operate. In contrast, the legislative solutions could adhere to the New Jersey model where troubled small water companies are being merged forcefully; or the Florida model, where emphasis is on the certification process.

# APPENDIX A

## NRRI SURVEY ON ACQUISITION OF SMALL, TROUBLED WATER UTILITIES

This appendix is the survey instrument for the NRRI survey of state commissions on acquisition of small water utilities conducted in the spring of 1986.

April 1986

# NRRI SURVEY ON ACQUISITION OF SMALL, TROUBLED WATER UTILITIES

The NARUC Water Committee and the NARUC Staff Subcommittee on Water, with the approval of the NRRI Board of Directors, have asked the NRRI to analyze actual commission experience in acquisition of small, troubled water companies. This survey is intended to begin the process by eliciting your help in (1) better defining the issue of acquisition as a means of solving problems of small water utilities, (2) identifying elements of merger agreements that are necessary for success, and (3) offering suggestions for in-depth case studies.

Please return the completed survey by MAY 19 to Ray Lawton, Associate Director, NRRI, 1080 Carmack Road, Columbus, Ohio 43210.

Name_____

Title_____

Commission_____

Phone_____

## SECTION 1: GENERAL BACKGROUND

1. How many investor-owned water utilities are under the jurisdiction of your commission?

| | Number of Utilities (classified by annual revenues) | | | | |
|---|---|---|---|---|---|
| Type of Utility | Revenues greater than $250,001 | Revenues between $250,000 and $100,001 | Revenues between $100,000 and $40,001 | Revenues between $40,000 and $15,001 | Revenue less tha $15,00 |
| Water utilities | | | | | |
| Combined water/sewer utilities | | | | | |

2. What elements do you believe are most important in defining a "troubled" water utility? Please rank the elements from most important = 1 to least important = 10, according to, first, the frequency with which the element is faced by the commission and, second, the importance you attach to it.

| | Rank Frequency | Rank Importance |
|---|---|---|
| 2.1 Poor record keeping | _____ | _____ |
| 2.2 Inadequate capital (including negative rate base and debt and debt larger than rate base) | _____ | _____ |
| 2.3 Lack of access to management/owner | _____ | _____ |
| 2.4 Poor water quality | _____ | _____ |
| 2.5 Poor management | _____ | _____ |
| 2.6 Operating losses | _____ | _____ |
| 2.7 Poor maintenance | _____ | _____ |
| 2.8 Customer complaints to the commission | _____ | _____ |
| 2.9 Low return on investment | _____ | _____ |
| 2.10 Other: _____ _____ | | |

3. Does your commission in any way regularly document the existence of troubled water utilities?

Yes _____ No _____

3.1 If "yes," how does the commission document the existence of troubled water utilities?

| | Yes | No |
|---|---|---|
| 3.11 Annual listing | _____ | _____ |
| 3.12 Systematic sorting of annual reports | _____ | _____ |
| 3.13 "Early warning" system | _____ | _____ |
| 3.14 Other: _____ _____ | | |

4. If your commission does not document the existence of troubled water utilities on a regular basis, do you feel confident that you can name the troubled water utilities? Yes: all of them _____ Yes: most of them _____ Yes: half of them or less _____ No_____

5. What authority under statutes or formal, written regulations does your commission have over troubled water utilities (whether large or small)?

| | Yes | No |
|---|---|---|
| 5.1 Authority to condemn | _____ | _____ |
| 5.2 Authority to force receivership | _____ | _____ |
| 5.3 Authority to force takeovers | _____ | _____ |

| | Yes | No |
|---|---|---|
| 5.4 Authority to force compliance | _____ | _____ |
| 5.5 Authority to encourage compliance | _____ | _____ |
| 5.6 Other: _____ | | |

(PLEASE MAIL THE NRRI ANY APPLICABLE STATUTES OR REGULATIONS.)

6. Does the Commission have a formal, written policy specifically addressed to regulation of troubled water utilities?
Yes _____ No _____

(IF YES, PLEASE MAIL THE NRRI THE APPLICABLE POLICY STATEMENT.)

7. How many formerly commission-regulated water utilities of any size no longer operate as separate, distinct, utilities regulated by the commission in your state in the last five years (between 1982 and 1986)? In each case, what happened to the utility?

| | Number of Utilities |
|---|---|
| 7.1 Dissolution of corporation | _____ |
| 7.2 Public merger: Municipal | _____ |
| 7.3 Public merger: County | _____ |
| 7.4 Public merger: Water and/or sewer district | _____ |
| 7.5 Transfer to homeowners' association | _____ |
| 7.6 Transfer to cooperative | _____ |
| 7.7 Private merger | _____ |
| Total number of water utilities that have changed their regulatory status between 1982 and 1986 | _____ |

# APPENDIX B

## NEW JERSEY SMALL WATER COMPANY TAKEOVER ACT REGULATIONS

This appendix is New Jersey's recently passed legislation to promote takeovers of small water utilities.

### 58:11–36. Standards for construction; minimum requirements; promulgation

Notes of Decisions

Actions 4

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**4. Actions**

Regulations governing design and installation of individual subsurface sewage disposal systems did not create private cause of action by purchasers of home for damages against vendors who had violated act by constructing above-ground swimming pool over seepage tank since intent of this section under which regulations were adopted was to protect environment for public as whole not for any single person, provisions for expedited agency enforcement of violations did not indicate intent to create private cause of action, and private action would be superfluous to achievement of purpose of legislation. Jalowiecki v. Leuc, 182 N.J.Super. 22, 440 A.2d 21 (A.D.1981).

### 58:11–43. Study to determine restriction as to types of sewerage facilities

**Administrative Code References**

Criteria and standards applicable to class V injection wells, see N.J.A.C. 7:14A–5.17.

### 58:11–44. Designation of critical areas by regulation

**Administrative Code References**

Coastal resource and development policies, see N.J.A.C. 7:7E–1.1 et seq.

### 58:11–45. Contents of regulation

**Administrative Code References**

Coastal resource and development policies, see N.J.A.C. 7:7E–1.1 et seq.

## ARTICLE 8. PRETREATMENT STANDARDS FOR SEWERAGE, ETC.

### 58:11–49. Legislative findings

**Administrative Code References**

New Jersey pollutant discharge elimination system, see N.J.A.C. 7:14A–1.1 et seq.

Sludge quality assurance, see N.J.A.C. 7:14–4.1 et seq.

### 58:11–51. Rules and regulations; establishment, alteration or abolition

**Administrative Code References**

Sludge quality assurance, see N.J.A.C. 7:14–4.1 et seq.

## ARTICLE 9. FACILITIES AND SERVICES OF SMALL WATER COMPANIES

**Law Review Commentaries**

New approach to New Jersey's water supply problems. Jerry Fitzgerald English (1983) 6 Seton Hall Legis.J. 349.

Water supply management: New legislative initiatives. Lewis Goldshore (1982) 110 N.J.L.J. 113.

### 58:11–59. Failure to comply with order to provide adequate service; finding; notice to capable water utilities or government entities in service area; joint public hearing; determination

Whenever any small water company is found, after notice and public hearing, to have failed to comply, within a specified time, with any order of the Department of Environmental Protection concerning the availability of water, the potability of water and the provision of water at adequate volume and pressure, which the

department is authorized to enforce pursuant to Title 58 of the Revised Statutes, the department and the Board of Public Utilities shall, after notice to capable proximate public or private water companies, municipal utilities authorities established pursuant to P.L.1957, c. 183 (C. 40:14B–1 et seq.), municipalities or any other suitable governmental entities wherein the small water company provides service, and the Department of the Public Advocate, conduct a joint public hearing to determine: the actions that may be taken and the expenditures that may be required, including acquisition costs, to make all improvements necessary to assure the availability of water, the potability of water and the provision thereof at adequate volume and pressure, including, but not necessarily limited to, the acquisition of the small water company by the most suitable public or private entity. As used in this act, "small water company" means any company, purveyor or entity, other than a governmental agency, that provides water for human consumption and which regularly serves less than 1,000 customer connections.

L.1981, c. 347, § 1, eff. Dec. 22, 1981.

**Title of Act:**

An Act concerning improvements to the facilities and services of small water companies and supplementing Title 58 of the Revised Statutes. L.1981, c. 347.

**Library References**

Waters and Water Courses ⇐185.
C.J.S. Waters § 248.

### 58:11–60. Compensation for acquisition; determination

Compensation for the acquisition of a small water company shall be determined:

a. By agreement between the parties, subject to the approval of the Board of Public Utilities, in consultation with the Department of Environmental Protection, and after the holding of a joint public hearing by the board and the department; or

b. Through use of the power of eminent domain.

L.1981, c. 347, § 2, eff. Dec. 22, 1981.

### 58:11–61. Order for acquisition; extension of franchise area of acquiring public or private entity

a. The Department of Environmental Protection and the Board of Public Utilities, upon a determination that the costs of improvements to and the acquisition of the small water company are necessary and reasonable, shall order the acquisition of the small water company by the most suitable public or private entity. This order shall provide for the immediate inclusion in the rates of the acquiring company the anticipated costs of necessary improvements, or, if the determination of acquisition costs has been deferred, as soon as possible thereafter as may be practicable and feasible.

b. The Board of Public Utilities shall extend the franchise area of the acquiring public or private water company to the extent necessary to cover the service area of the small water company taken over pursuant to this act.

L.1981, c. 347, § 3, eff. Dec. 22, 1981.

### 58:11–62. Compliance with order

Any water company, municipal utilities authority, municipality or other suitable governmental entity which receives an order pursuant to section 3 of this act shall acquire the small water company and shall make the necessary improvements to assure the availability of water, the potability of the water and the provision of water at adequate volume and pressure. The small water company shall immediately comply with the order and shall facilitate its sale to the water company, municipal utilities authority, municipality or other suitable governmental entity ordered to acquire the small water company.

L.1981, c. 347, § 4, eff. Dec. 22, 1981.

**last deletions by ~~strikeouts~~**

### 58:11–63. Differential rate for customers of small water company for use or service of acquiring company's system or facilities

Whenever the Department of Environmental Protection and the Board of Public Utilities order the acquisition of a small water company by the most suitable public or private entity pursuant to law, the board may, in its discretion, allow the acquiring company to charge and collect a differential rate from the customers of the small water company for the use or service of the acquiring company's water supply system or facilities.

L.1981, c. 389, § 1.

Section 2 of L.1981, c. 389, approved Jan. 6, 1982, provides:

"This act shall take effect upon enactment of P.L.1981, c. [347] (now pending before the General Assembly as Senate Committee Substitute for Senate Bill No. 1614 [approved Dec. 22, 1981]."

**Title of Act:**

An Act concerning the acquisition of small water companies and supplementing Title 58 of the Revised Statutes. L.1981, c. 389.

**Library References**

Waters and Water Courses ⇐185.
C.J.S. Waters § 248.

## ARTICLE 10. LICENSING OF WATER SUPPLY AND WASTE WATER OPERATORS [NEW]

### 58:11–64. Short title

This act shall be known and may be cited as the "Water Supply and Wastewater Operators' Licensing Act."

L.1983, c. 230, § 1, eff. June 29, 1983.

**Title of Act:**

An Act concerning the licensing of operators for water supply and wastewater plants and systems, and repealing parts of Title 58 of the Revised Statutes relating thereto. L.1983, c. 230.

**Library References**

Health and Environment ⇐25.7(2).
C.J.S. Health and Environment §§ 125 to 128, 137.

### 58:11–65. Definitions

As used in this act:

a. "Commissioner" means the Commissioner of the Department of Environmental Protection or his designated representative;

b. "Department" means the Department of Environmental Protection;

c. "Licensed operator" means a licensee approved by the department holding any local title, designation, or job description who is on the premises of a system a significant amount of time, although not necessarily full-time, and who is actively involved in and responsible for the operation, maintenance, and effectiveness of the system and who holds a valid license equal or superior to that required for the system;

d. "Licensee" means a person who possesses a valid license issued by the department pursuant to this act;

e. "Industrial wastewater treatment system" means any treatment works regulated by the department pursuant to the "Water Pollution Control Act," P.L.1977, c 74 (C. 58:10A–1 et seq.);

f. "Operating requirements" means any and all provisions of permits or approvals, administrative orders, directives, or rules and regulations which the department may issue or adopt to insure the safe and efficient operations of systems, consistent with its statutory authority;

g. "Public wastewater collection system" means any collection system regulated by the department pursuant to the "Water Pollution Control Act," P.L. 1977, c. 7 (C. 58:10A–1 et seq.), and which system consists of structures which, operating alon

APPENDIX C

OHIO QUESTIONNAIRE FOR
ABANDONMENT OF WATERWORKS SYSTEMS

This appendix is Ohio's affidavit required of all applicants who seek to abandon waterworks systems. The questions are the subject of public hearings that the Ohio commission may choose to convene to examine further the responses of the applicant.

## WATERWORKS SYSTEM ABANDONMENT AFFIDAVITS

1. What date was the waterworks company established? What are the dates of all expansions, if any? (See Section 4933.25, Revised Code.)

2. Does the company have a certificate of public convenience and necessity? If yes, does the certificate cover all of the geographical area presently served by it?

3. If the answer to either part of question 2 is "no," explain why not and describe the boundaries of the service area not covered by a certificate.

4. Does the company have an up-to-date tariff on file with the Commission? If no, why not?

5. Is the company proposing to abandon its entire waterworks operations? If no, describe the boundaries of the area within which it proposes to abandon service.

6. How many customers does the company have altogether, and if different, in the area within which it proposes to abandon service?

7. What are the prospects for growth in the number of customers under the transferor, and, if known, under the transferee?

8. Will the transferee serve all the present customers of the transferor in the service area within which service is being abandoned? If no, why not?

9. Will the customers be without service at any time due to the transfer?

10. What prompted this application for abandonment?

11. Would the transferor be able to continue operating the system? If no, why not?

12. What is the source of the water?

13. Describe the facilities being abandoned. Include the water supply, intake system, treatment plant, storage system, distribution system, easements, other real estate, and any other facilities.

14. What is the total value of all the facilities being abandoned? Is this figure based on the book value, outside appraisal, company estimate, or some other method of valuation?

15. What is the quality of the water? Include any available measurements such as hardness, turbidity, pH, chemical impurities, and bacterial counts. Attach the most recent annual and subsequent report. Water Quality Data by the Ohio Environmental Protection Agency.

16. In the last five years, has the system had any problems or customer complaints relating to service interruptions, water quality, water pressure, billing, rates, or other areas? If yes, explain.

17. Other than the instant case, are there any pending court cases of administrative agency proceedings involving the company? If yes, name the court or agency, give the case number, and describe the nature of the action and its current status.

18. Attach the most recent balance sheet and income statement of the transferor, and, if available, of the transferee. Do they accurately reflect the current financial condition of the transferor, and, if known, of the transferee? If no, provide updated figures.

19. Give the details of the transfer agreement, and the purchase price or other consideration if any.

20. Describe the business relationship, if any, between the transferor and the transferee.

21. What experience does the transferee have in the day-to-day operations of a waterworks company?

22. What are the present rates under the transferor, and, if known, the proposed rates under the transferee?

23. Will the customers experience any one-time charges due to the transfer?

24. How are emergency repairs handled by the transferor, and, if known, how does the transferee propose to handle them?

25. Were the customers consulted about the transfer? If no, why not? If yes, what was their reaction?

26. Did the transferor consider any alternatives to this proposed transfer? If no, why not? If yes, what are the reasons why the transferee's acquiring of the system is the best available alternative?

27. Is there anything else the applicant believes should be added in order to "satisfy the commission that the proposed abandonment . . . is reasonable, having due regard for the welfare of the public and the cost of operating the service or facility" (See Section 4905.21, Revised Code)?

Source: Public Utilities Commission of Ohio.

# APPENDIX D

## VIRGINIA LEGISLATION ON SMALL WATER COMPANIES

This appendix is Virginia's legislation passed in 1986 to simplify regulation of small water utilities. The first part is the text of the statute. Terms used in the text are defined in the amendment that follows.

An Act to amend and reenact 56-265-3 of the Code of Virginia, relating to the certificate to furnish public utility service.

[H 510]

Approved April 7, 1986

Be it enacted by the General Assembly of Virginia:
1. That 56-265.3 of the Code of Virginia is amended and reenacted as follows:

56-265.3. Certificate to furnish public utility service; allotment of territory transfers, leases or amendments.

A. No public utility shall begin to furnish public utility service within the Commonwealth without first having obtained from the Commission a certificate of public convenience and necessity authorizing it to furnish such service; provided, that any company engaged in furnishing a public utility service in this Commonwealth as of July 1, 1950, shall, upon filing maps with the Commission within ninety days from such date, showing the territory now being served by it, be entitled to receive a certificate of convenience and necessity authorizing it to begin to furnish such public utility service in such territory. Also, any company that is granted authority under the Public Utilities Securities Act to issue securities for the purpose of constructing or extending facilities described in the application for such authority, shall, if the application was filed with the State Corporation Commission before February 1, 1950, have the same right to a certificate of convenience an necessity that it would have had if the facilities had been in operation and serving the public on February 1, 1950. Provided further, that any company which was engaged in furnishing a public utility service in this Commonwealth as of July 1, 1950 and which is now so engaged in providing the same kind of service, and which could have filed maps with the Commission in accordance with the requirements of this section but failed to do so, may file such maps not later than January 1, 1974, showing the territory now being served by it, and be entitled to receive a certificate of convenience and necessity authorizing it to continue to furnish the same kind of public utility service in such areas to the same extent as if it had filed maps as of July 1, 1950.

B. On initial application by any company, the Commission, after formal or informal hearing upon such notice to the public as the Commission may prescribe, may, by issuance of a certificate of convenience and necessity, allot territory for development of public utility service by the applicant if the Commission finds such action in the public interest.

C. If the initial applications provides for the furnishing of water or sewerage service within any political subdivision in which there has been created an authority for either or both of such purposes pursuant to Chapter 28 ( 15.1-1239 et seq.) of Title 15.1 of this Code, the Commission shall not hold any hearing on such application or issue any certificate for the allotment of territory unless the application shall first have been approved by the governing body of the political subdivision in which the territory is located.

D. If the Commission finds it to be in the public interest, upon the application of a holder of a water or sewer certificate, such certificate may be transferred, leased or amended after such reasonable notice to the public and opportunity to be heard as the Commission by order may prescribe. The Commission may authorize the transfer, lease, or amendment of the certificate subject to such restrictions as the Commission finds will promote the public interest.

E. The Commission is authorized to promulgate any rules necessary to implement this section.

An Act to amend and reenact 56-265-3 of the Code of Virginia, relating to the certificate to furnish public utility service.

Statute Definitions

[H 187]

Approved April 1, 1986

Be it enacted by the General Assembly of Virginia:

1. That the Code of Virginia is amended by adding in Title 56 a chapter numbered 10.2:1, consisting of sections numbered 56-265.13:1 through 56-265.13:7, as follows:

CHAPTER 10.2:1
SMALL WATER OR SEWER PUBLIC UTILITY ACT

56-256.13:1. Short title.-This chapter may be cited as the "Small Water or Sewer Public Utility Act."

56-265.13:2. Definitions.-As used in this chapter:

"Commission" shall mean the "State Corporation Commission."

"Service" shall mean any product or commodity furnished by a small water or sewer utility, as well as its equipment, apparatus, appliances and facilities devoted to the functions in which that utility is engaged to the use and accommodation of the public.

56-265.13:3. Applicability of Chapter.-This chapter shall apply to every certified water or sewer public utility company or water and sewer public utility company with gross annual operating revenues of less than $1 million.

56-265.13:4. Rates and services.-A small water or sewer utility shall be required to furnish reasonably adequate services and facilities, subject to the regulation of the Commission. The charges made by any small water or sewer utility for any service rendered shall be (i) uniform as to all persons or corporations using such service under like conditions and (ii) nondiscriminatory, reasonable and just. Every charge for service found to be otherwise shall be unlawful. Reasonable and just charges for service within the meaning of this section shall be the lowest charges as shall produce sufficient revenues to pay all lawful and necessary expenses incident to:

1. The operation of the system, including maintenance costs, operating charges, and interest charges on bonds or other obligations;

2. The providing for the liquidation of bonds or other evidence of indebtedness and the attraction of capital;

3. The providing of adequate funds to be used as working capital, as well as reasonable reserves and funds for making replacements, which

may be escrowed and used only as working capital if the Commission so directs as a result of a proceeding conducted pursuant to 56-265.13:6.

4. The providing for the payment of taxes that may be assessed against the small water or sewer utility or its property; and

5. Compensation of owners of the utility for their capital or property invested in the system, if any, and for their time and other resources expended in the operation of the system not otherwise recovered under paragraphs 1 through 4 of this section.

56-265.13:5. Notice of rate changes.

A. A small water or sewer utility shall make a copy of its current rates, charges, fees, rules and regulations available for public inspection during regular business office hours in its designated business office where bills can be paid.

B. A small water or sewer utility shall notify in writing all of its customers of any changes in its rates, charges, fees, rules and regulations at least forty-five days in advance of any change in any one of them. A copy of such notification shall be forwarded to the Commission at the same time as provided to the customers. The notice to the customers shall identity the nature of the change, the effective date of the change, and in the case of changes in rates, fees, and charges, shall identify the new rates, fees, and charges.

56-265.13:6. Public hearing on application.-Upon application to the Commission by at least twenty-five percent of all customers affected by a rate change or by 250 affected customers, whichever number is lesser, or by the small water or sewer utility itself, or by the Commission, upon its own motion, a hearing shall be held after at least thirty days' notice to the small water or sewer utility and to its customers. The Commission may order such improvements or changes in service, regulations, measurements, practices, acts, and rates of such utility as are just and reasonable.

56-265.13:7. Regulation by State Corporation Commission.

A. Every small water or sewer utility subject to this chapter shall be subject only to the following provisions: 56-233.1, 56-234.4, 56-235.1, 56-239, 56-245.1, 56-246, 56-247.1 through 56-248, 56-249 through 56-249.2, 56-250, 56-254, 56-256 through 56-265, and Chapters 1, 2 and 10.1 of Title 56. Small water or sewer utilities shall not be subject to Chapters 3 ( 56-55 et seq.), 4 ( 56-76 et seq.) and 5 ( 56-88 et seq.) of Title 56.

B. The Commission is authorized to promulgate any rules necessary to implement this chapter.

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Paul Soteriades, Economist, Utilities Division, Arizona Commerce Commission
Robert Geake, Vice-President and General Counsel, Arizona Water Company

California

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Wesley Franklin, Chief, Water Utilities Branch, California Public Utilities Commission
Donald L. Houck, Vice-President, California Water Service Company

Florida

Florida Public Service Commission Order 14367
N. D. Walker, Regulatory Analyst, Florida Public Service Commission
Matthew Rogers, Vice-President, Kingsley Service Company

Idaho

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Donald C. Miller, Auditor, Idaho Public Utilities Commission
Wayne L. Booe, President, Boise Water Corporation

Illinois

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William J. Ide, Chief Water Engineer, Illinois Commerce Commission
Charles H. Smith, President, Kankakee Water Company

Maryland

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Frank J. Diller, Jr., Water and Sewerage Systems Engineer, Maryland Public Service Commission
David H. Demaree, Vice-President and Director of Operations, Utilities, Inc.

Massachusetts

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Paul E. Osborne, Utility Accountant, Massachusetts Department of Public Utilities
David Kanke, Manager, Hingham Water Company

New Jersey

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John F. Stanziola, Bureau Chief, New Jersey Board of Public Utilities
Walter M. Braswell, General Attorney, Elizabethtown Water Company

New Mexico

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Gary G. Roybal, Engineering Manager, New Mexico Public Service Commission
Frank Bailey, Director of Planning and Engineering, Sangre de Cristo Water Company

North Carolina

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Jerry H. Tweed, Director, Water and Sewer Division, Public Staff, North Carolina Utilities Commission
David H. Demaree, Vice-President and Director of Operations, Utilities Inc.

South Carolina

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Charles A. Creech, Chief, Water and Wastewater Department, South Carolina Public Service Commission
William Hughes, President, Hughes Water Systems, Incorporated

Vermont

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Susan S. Martin, Utilities Rate Analyst, Vermont Department of Public Service
Michael T. McLaughlin, Manager-Owner, Sunshine Water Company

### C. People Interviewed about Public Mergers of Small Water Utilities

Arizona

P. Soteriades, Economist, Utilities Division, Arizona Commerce Commission

California

W. Franklin, Chief, Water Utilities Branch, California Public Utilities Commission

Florida

D. Knapp, Director, Water and Sewer Department, Florida Public Service Commission

Illinois

T. Stack, Assistant Chief, Economics & Rates Department, Illinois Commerce Commission

Mississippi

K. Howle, Director of Administrative Services, Mississippi Public Service Commission

New Jersey

P. Lombardi, Supervising Accountant, Division of Water and Sewer, New Jersey Board of Public Utilities

North Carolina

J. Tweed, Director, Water Division, North Carolina Utilities Commission

Ohio

G. Higgins, Attorney Examiner, Ohio Public Utilities Commission
J. Donnell, Section Chief, Water and Sewer Section of Compliance Division, Ohio Public Utilities Commission
J. Doutt, Assistant Water Administrator, City of Columbus, Division of Water

South Carolina

F. Brock, Rate Analyst II, Water and Wastewater Department, South Carolina Public Service Commission

Virginia

J. Hottinger, Associate Utilities Engineer, Virginia State Corporation Commission