

**FOCUSED MANAGEMENT
AND
OPERATIONS AUDIT
OF
PENNSYLVANIA-
AMERICAN WATER
COMPANY**

**PREPARED BY THE
PENNSYLVANIA UTILITY COMMISSION
BUREAU OF AUDITS
MANAGEMENT AUDIT DIVISION**

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**PENNSYLVANIA-AMERICAN WATER COMPANY
FOCUSED MANAGEMENT AND OPERATIONS AUDIT
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FOCUSED MANAGEMENT AUDIT
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I. INTRODUCTION

In accordance with the Pennsylvania Public Utility Commission's (PUC or Commission) program to identify improvements in the management and operations of fixed utilities under its jurisdiction, it was determined that a focused management and operations audit should be conducted of Pennsylvania-American Water Company (PAWC or Company). Management and operational reviews, which are required of certain utility companies pursuant to 66 PA C.S. § 516(a), come under the Commission's general administrative power and authority to supervise and regulate all public utilities in the Commonwealth, 66 PA C.S. § 501(b). More specifically, the Commission can investigate and examine the condition and management of any public utility, 66 PA C.S. § 331(a).

This report represents the written product of the focused management and operations audit and contains the resultant findings and recommendations for improvement in the management and operations of PAWC. The findings presented in the report identify certain areas and aspects where weaknesses or deficiencies exist. In all cases, recommendations have been offered to improve, correct, or eliminate these conditions. The final and most important step in the management audit process is to initiate actions toward implementation of the recommendations.

A. OBJECTIVES AND SCOPE

The objectives of this focused management and operations audit were threefold:

- To provide the Commission, PAWC, and the public with an assessment of the economy, efficiency, and effectiveness of the Company's operations, management methods, organization, practices, and procedures.
- To identify opportunities for improvement and develop recommendations to address those opportunities.
- To provide an information base for future regulatory and other inquiries into the management and operations of PAWC.

The scope of this audit was limited to certain areas of the Company as explained in Section B, the Audit Approach, below.

B. AUDIT APPROACH

The audit process began with a pre-field work analysis as outlined below:

- A five-year internal trend and ratio analysis was completed using financial and operational data obtained from the Company, Commission, and other available sources. This analysis, which focused on the period 1994-1998, was supplemented by comparisons to a panel of other water companies for the years 1995-1998.
- Input was solicited from Commission Bureaus and Offices, certain external parties, and the Company regarding any concerns or issues they would like to have addressed during the course of our review.

Information from the above steps was used to initially focus the Audit Staff's work efforts in the field. Some areas or functions of the Company were selected for in-depth analysis, other areas were selected for further diagnostic assessment during early stages of the field work, and still others were dropped from further consideration.

The actual field work began on August 18, 1999 and continued through November 9, 1999. The principal components of the fact gathering process included:

- Interviews with Company personnel.
- On-site analysis of records, documents, and reports of a financial and operational nature. This analysis focused primarily on the period 1994-1999, as available.

C. DIAGNOSTIC ASSESSMENTS

Based on our diagnostic assessment efforts, both before and during the field work, we excluded a number of Company functions or areas from this focused report. Our diagnostic assessment of these functions or areas revealed that minimum management controls were in place, critical operating factors appeared to be satisfactory, and/or performance of additional work could not be justified from a cost/benefit perspective. These excluded functions or areas are:

Executive Management and Organization
Finance
Budgeting
Management Information Systems
Human Resources
Compensation
Facilities Management
Purchasing
Materials Management

A diagnostic assessment should not be construed as a comprehensive evaluation of management or operations in the affected functional areas. Had we conducted a thorough review of these areas, other weaknesses or deficiencies may have come to our attention that were not identified in the limited review.

D. FUNCTIONAL RATINGS

In those functions or areas of the Company where a diagnostic assessment indicated that basic management controls and/or critical operating factors could be improved, the audit staff expanded the scope of the review and was able to rate each function or area's actual operating performance level relative to its expected performance level at the time of the audit. This expected performance level is the state at which each functional area should be operating given the resources, requirements, constraints, and general operating environment. Expected performance is not some "cutting edge" operating condition. Rather, it is the management of a function such that it produces reasonably expected operating results.

Presented below are the categories utilized to rate each function or area's actual operating performance level relative to its expected performance level:

- **MEETS EXPECTED PERFORMANCE LEVEL**
- **MINOR IMPROVEMENT NEEDED**
- **MODERATE IMPROVEMENT NEEDED**
- **SIGNIFICANT IMPROVEMENT NEEDED**
- **MAJOR IMPROVEMENT NEEDED**

Our functional ratings for the Company can be found in Exhibit I D-1.

E. RECOMMENDATION SUMMARY

Chapters III through XI provide findings, conclusions, and recommendations for each function or area reviewed in-depth during this focused audit. Exhibit I E-1 summarizes the recommendations with the following priority assessments for implementation:

- HIGH PRIORITY – implementation of the recommendation would result in significant cost savings, major service improvements, or substantial improvements in management practices and performance. These recommendations should be implemented as soon as practical.
- MEDIUM PRIORITY – implementation of the recommendation would result in important cost savings, service improvements, or meaningful improvements in management practices and performance. Implementation of these recommendations should begin within 12 months.
- LOW PRIORITY - implementation of the recommendation could potentially enhance cost controls, service improvements, or management practices and performances. Implementation of these recommendations should begin within 18 months.

These priorities were assigned based on the audit staff's assessment of the potential impact of the recommendations and the Company's available resources.

**PAWC
 FOCUSED MANAGEMENT AUDIT
 FUNCTIONAL RATING SUMMARY**

Functional Area	Meets Expected Performance Level	Minor Improvement Needed	Moderate Improvement Needed	Significant Improvement Needed	Major Improvement Needed
Fleet Operations			X		
Energy Procurement		X			
Unaccounted-For- Water		X			
Drought Contingency Planning		X			
Customer Call Center Consolidation			X		
Meter Reading		X			
Cost Allocations		X			
PG&W Acquisition	X				
Diversity			X		

**PAWC
 SUMMARY OF RECOMMENDATIONS**

<u>Chapter/Section Title</u>	<u>Recommendation</u>	<u>Page Number</u>	<u>Priority</u>
III. Fleet Operations	<ol style="list-style-type: none"> 1. Customize the vehicle exception parameters based on the Company's fleet profile. Management should periodically review and update the parameters on a timely basis to properly identify vehicles operating inefficiently and to enforce fleet operating standards. 2. Conduct and document fleet cost activity and operating practice benchmarking studies on a periodic basis. 3. Update the vehicle management operating policies and procedures manual and periodically review and revise as necessary. 	11	High
IV. Energy Procurement	<ol style="list-style-type: none"> 1. Conduct a current preliminary energy survey for its 29 demand metered accounts in order to identify potential energy audit candidate sites. Prioritize, schedule, and conduct energy audits for these sites in a timely manner based on the cost-effective energy conservation measures. 	15	Medium

**PAWC
 SUMMARY OF RECOMMENDATIONS**

<u>Chapter/Section Title</u>	<u>Recommendation</u>	<u>Page Number</u>	<u>Priority</u>
V. Unaccounted-for-Water	<ol style="list-style-type: none"> 1. Develop an automated company-wide leak survey and repair database to be utilized with the recommended main replacement prioritization procedure. 2. Develop a formalized main replacement procedure based on weighted factors in order to systematically prioritize main replacement candidates on a state-wide basis. 3. Conduct a cost/benefit study on a periodic basis to determine the appropriate mix of contractors and in-house personnel to perform annual leak survey work. 	21	Medium
VI. Drought Contingency Planning	<ol style="list-style-type: none"> 1. Develop internal management action plans to support the staged supply extension and demand reduction measures for those districts evaluated for drought vulnerability on a risk assessment basis. 	24	Medium

PAWC
SUMMARY OF RECOMMENDATIONS

<u>Chapter/Section Title</u>	<u>Recommendation</u>	<u>Page Number</u>	<u>Priority</u>
VII. Customer Call Center Consolidation	<ol style="list-style-type: none"> 1. Continue efforts to consolidate the existing customer service call centers. Management should complete and document detailed plans and cost benefit analyses in support of consolidation strategy chosen. Also, PAWC should formally track actual implementation costs and realized benefits from the consolidation, and retain these results for regulatory review. 	27	High
VIII. Meter Reading	<ol style="list-style-type: none"> 1. Perform, and document, a cost/benefit analysis for full and/or partial deployment of an automatic fixed-network meter reading (AMR) system; include an analysis of operating and capital expenses which reflect productivity improvements and staffing reductions that could be realized. 	33	Medium
IX. Cost Allocations	<ol style="list-style-type: none"> 1. Develop a more detailed internal audit report that clearly defines the audit scope and results, as well as the corrective actions recommended, for the periodic cost allocation and direct billing charge review. A copy of the audit report should be routinely provided to PAWC and the other A WWC operating companies. 	37	Medium

PAWC
SUMMARY OF RECOMMENDATIONS

<u>Chapter/Section Title</u>	<u>Recommendation</u>	<u>Page Number</u>	<u>Priority</u>
X. PG&W Acquisition	None		
XI. Diversity			
	1. Set goals with timetables for increasing the Company's female and minority employment percentages, especially for the Pittsburgh, Wilkes-Barre/Scranton, and Hershey-Corporate geographic locations.	44	High
	2. Develop annual MWDBE procurement goals with accountability established at the Regional Operating Manager level.	44	High
	3. Update the Company's MWDBE vendor list and integrate it into the purchasing process, and establish a process to ensure that the MWDBE vendor list remains current in the future.	44	Medium

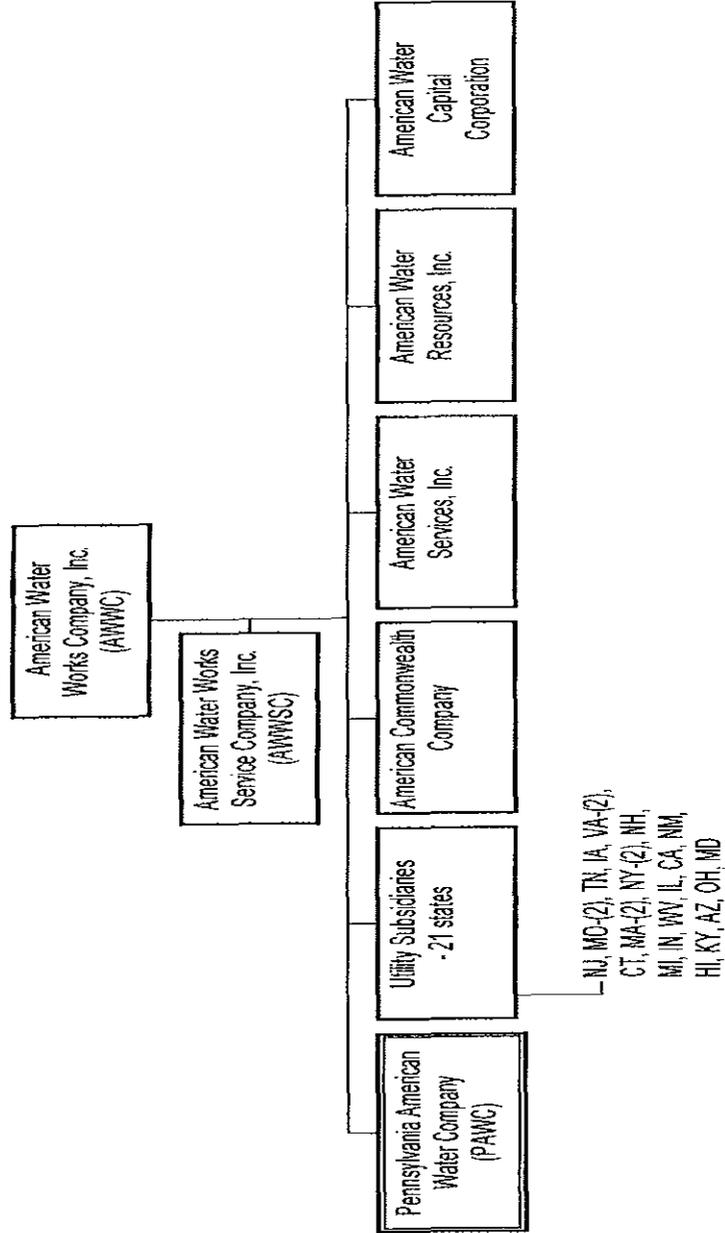
II. BACKGROUND

Pennsylvania-American Water Company (PAWC or Company), a wholly-owned subsidiary of American Water Works Company, Inc (AWWC), is one of the largest regulated public water utilities in the United States. As shown in Exhibit II-1, PAWC is one of 23 utility subsidiaries operating in 21 states. American Water Works Service Company (AWWSC), an affiliate, provides certain management services (i.e., administration, data processing, engineering, etc.) to PAWC and other operating companies in the American Water Works System on an at-cost basis in accordance with management and service agreements. PAWC also has agreements with another affiliate, American Commonwealth Management Service Company, Inc. (ACMS), for the lease of granular activated carbon at one of its purification plants, and for the purchase of carbon at several others. The lease and purchase agreements provide for ACMS to regenerate the spent carbon and return it to the plant where it originated.

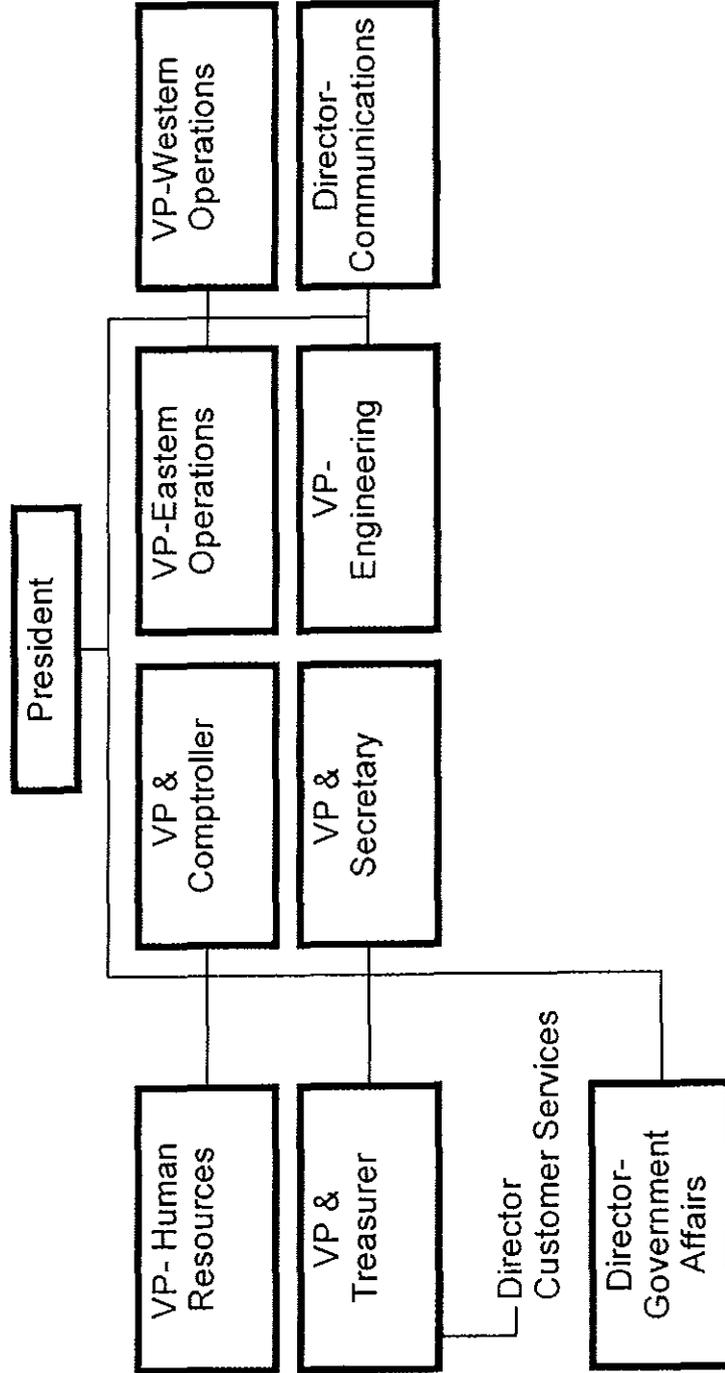
PAWC provided water service to approximately 543,000 customers and wastewater service to approximately 4,800 customers as of December 31, 1999. These customers live in 291 municipalities in 31 of Pennsylvania's 67 counties. As of July 1999, the Company employed approximately 1,068 employees having expertise in all areas of water utility operations including engineering, water quality, treatment plant operation and maintenance, distribution system operation and maintenance, materials management, risk management, human resources, legal, finance, and accounting. The Company's organization chart is shown in Exhibit II-2.

The Company, headquartered in Hershey, is divided into four geographically diverse operating areas or regions (Eastern, Northeastern, Western, and Pittsburgh). The Eastern Operating Region, with its office located in Mechanicsburg, provides service to customers in central and eastern Pennsylvania with some of the larger customers including Hershey Foods, American Home Foods, and the Norristown State Hospital. The Northeastern Operating Region with its office located in Wilkes-Barre provides service to customers that include Harris Semiconductor and Quaker Oats Company. The Western Operating Region, with its office located in McMurray, provides service to customers in western Pennsylvania with its larger customers that include U.S. Steel, Washington Steel, United Refinery, Armco Steel, and Koppel Steel. The Pittsburgh Operating Region with its office located in Mt. Lebanon, a suburb of Pittsburgh, serves Allegheny County and is the second-largest contiguous distribution system in the American Water System.

AWWC Corporate Organization Chart



PAWC ORGANIZATION CHART



The Company's water supply is provided principally from surface supplies such as rivers, streams, and reservoirs. Water is also supplied from wells and through purchase contracts via interconnections with other water suppliers. In 1998, the total amount of water delivered to the system averaged approximately 190 million gallons per day (MGD) of which surface water accounted for approximately 94%, wells approximately 4%, and purchased water approximately 2%.

Currently, the Company's strategic plan is growth through acquisition. During 1998, the Company acquired eight systems (Clarion Township General Authority, Green Valley Water Company, National Utilities, Inc. – Pocono Division, Franklin Manor Utilities Ltd., Evansburg Water Company, Taylor Township, Fairview Water Company, and Pocono Mountain Industrial Park Authority) serving populations in six counties. Through November 1999, the Company had acquired four additional systems including Applewood Borough (March 1999), Cedar Grove Water Association (July 1999), Independence Township Municipal Authority (July 1999), and Koppel Borough (November 1999). Additionally, in October 1999 AWWC announced the acquisition of Citizens Utilities Companies' water and wastewater assets. This increased the number of customers served in Pennsylvania by 38,000.

III. FLEET OPERATIONS

Background

As of September 1999, PAWC maintained a fleet of 609 vehicles, with all but three vehicles leased. By December of 1999, the Company projects its fleet size (as per its 1999 rate filing) to be 591 vehicles after salvaging its three remaining Company-owned vehicles and returning 12 vehicles with expiring lease terms to its lessor. As shown in Table III-1, the Company's employee to vehicle ratio has been maintained at a relatively stable range from 1997 to 1999 (using the projected 1999 year-end data).

**Table III-1
 Fleet Profile**

Year	Leased Vehicles	Owned Vehicles	Total Vehicles	Employees per Vehicle
1997	517	83	600	1.82
1998	581	45	626	1.73
Sept-1999	606	3	609	1.75
Projected 1999 year-end	591	0	591	1.81
% change	14.3%	-100%	-1.5%	-0.5%

Source: VM-1, VM-9, auditor analysis

Prior to the 1997 expiration of its five-year lease contract, the Company reviewed its vehicle acquisition practices by performing a vehicle lease versus buy study. This study indicated that leasing was the most cost-effective method for acquiring vehicles. Additionally, the Company performed a life-cycle analysis, which compared different lease terms for passenger vehicles. The Company concluded that 36-month terms were more economically favorable than its previous practice of leasing for 50-month terms. As a result of the lease versus buy study and life-cycle analysis, competitive bids were obtained for providing vehicle leasing services on a 36-month term basis for cars, vans, four-wheel drive vehicles, and light/medium pick-up trucks while maintaining 50-month lease terms for heavy utility trucks. In January 1998 the Company entered into a five-year agreement with General Electric Capital Fleet Services (GECFS) for vehicle leasing services.

PAWC also renewed its maintenance management services agreement with GECFS for a five-year period in January 1998. This agreement includes preparation of monthly vehicle operating and expense reports grouped by district,

region, and Company-wide categories. Other maintenance management benefits include receipt of a 15% discount by utilizing the GE maintenance vendor network with additional GE year-end cash rebates provided upon attaining certain vendor utilization thresholds. Additionally, a fuel card purchasing program provides management with a tracking mechanism to monitor timely information regarding individual vehicle fuel consumption performance and expense trends.

Findings and Conclusions

Our examination of the fleet operations included a review of the assigned roles and responsibilities; vehicle maintenance and acquisition practices; policies and procedures; fleet size and utilization; and the vehicle management information system. We found these areas to be satisfactory except as follows:

1. The Company's vehicle management reporting system is not being fully utilized to monitor and control fleet operating expenses and to enforce compliance with fleet operating standards.

As previously mentioned, GECFS has been under contract since 1992 to provide vehicle maintenance management services to PAWC with the most recent contract renewal completed in 1998 for a five-year period. Management reports generated by GECFS include the electronic fuel program transaction report, executive vehicle expense summary report, fleet expense overview report, vehicle expense summary report, and the vehicle expense exception summary report. Apart from expense information, the vehicle management reports provide data regarding compliance with operating standards (e.g., fuel usage type, utilization of approved GE maintenance and fuel vendors, etc.)

Of particular importance is the exception summary report, which is generated on a quarterly basis and details four exception categories including cost per mile for unscheduled maintenance service, cost per mile for preventative maintenance, cost per mile for tires, and miles per gallon for fuel. Exception reporting is intended to readily identify vehicles operating outside of normal parameters including non-compliance with established policies and procedures, high operating costs or unusually low utilization. However, the existing exception reports are inadequate, outdated and rarely used. The Company's fleet manager feels that the exception reports are of limited value because the original exception parameters provided by GECFS in 1992 to serve as initial guidelines have never been modified, and are not tailored to the composition of the Company's existing fleet. For example, costs and utilization of heavy duty vehicles are not measured on a per hour basis. As a result, the original exception parameters (based primarily on passenger sedans) are being applied to all vehicle classes resulting in a high percentage of exceptions. For example, the June 1999 exception summary report showed a 75% exception rate.

The consequences of failing to monitor and modify the exception parameters continuously for all vehicle classes are: unnecessary expenses incurred by the Company as a result of an inability to identify underutilized and poor performing vehicles; low utilization of the GE approved maintenance vendor network as well as the loss of associated discounts for using approved vendors; additional invoice processing costs for using non-GE approved vendors; and potential lost rebate savings for not achieving vendor utilization thresholds.

While it is hard to quantify the savings from an improved vehicle management reporting system, there is one area where this is possible. Specifically, the Company could achieve annual savings of approximately \$44,400 (based on 1998 operating data) by increasing its vendor network utilization rate from 32% to 72%. This percentage represents utilization levels previously achieved in the Pittsburgh Service Area as well as a level achieved by a comparative fleet provided by GECFS' database.

2. The Company has not conducted extensive fleet cost activity and operating practice benchmarking studies.

Currently, GEFCS provides PAWC with comparative fleet benchmark data on an annual basis. This benchmark data is limited, but does include a comparison between PAWC and two or three comparative fleets from GECFS' database. As shown in Table III-2, the expense and operating parameters compared include operating cost per mile, operating cost per unit per month, and average miles per month per vehicle.

**Table III-2
Fleet Comparative Benchmark Data**

Year	Category	PAWC	Fleet A	Fleet B	Fleet C
1998	Operating cost/mile	\$.0715	\$.0291	\$.0271	\$.0293
	Operating cost/unit/month	\$56.79	\$71.95	\$64.33	\$68.09
	Average miles/mo./vehicle	794	2,472	2,369	2,424
1997	Operating cost/mile	\$.0564	\$.0395	\$.0319	n/a
	Operating cost/unit/month	\$80.87	\$79.38	\$87.11	n/a
	Average miles/mo./vehicle	1,433	2,008	2,737	n/a

Source: 1999 & 1998 GECFS Annual Maintenance Management Review
n/a -- not available

However, there are a couple of problems with this benchmark comparison. First, according to GECFS, the fleets of the comparative companies are not similar in size and composition. This appears to account for some of the wide differences

in operating cost per mile, etc. Secondly, there is no benchmark data for heavy duty vehicles such as operating costs per hour.

Apart from the benchmark data provided by GECFS, PAWC does not benchmark fleet operating practices regarding fleet maintenance (i.e., in-house vs. external), vehicle parts procurement (i.e., tires, etc.), maintenance management functions, etc. Moreover, although the Company contends that informal surveys have been conducted with other companies to help assess the Company's current fleet size, those efforts have not been documented. The Company's ratio of employees to vehicles decreased from 2.18 in 1983 to 1.73 in 1998, or by approximately 20%.

The Company currently feels that the vehicle acquisition bidding process and lease versus buy studies as well as the maintenance management services provided by GECFS have resulted in reasonable expense levels and adequate operating practices. Nevertheless, more extensive benchmarking would provide for a better comparison of the Company's fleet performance, processes, and activities with the best performers in the industry.

3. The Vehicle Management Operating Policies and Procedures Manual is outdated.

PAWC's current vehicle policy and procedure manual dates back to 1981 with partial revisions made in 1985 and 1986. The manual consists primarily of an AWWC corporate policy that outlines the vehicle assignment and administrative responsibilities for the American System Operating Companies in very general and broad terms. While the contents of the manual specify the minimum record-keeping requirements for fleet operations, these requirements are more relevant to a smaller fleet operation than PAWC's and one performed with manual record-keeping. Also, the vehicle manual includes references to vehicle operating reports no longer utilized by PAWC drivers, and lacks specific procedures relevant to PAWC's fleet operations.

An updated vehicle policies and procedures manual should be developed with detailed procedures specific to PAWC's operation. At a minimum, the manual should address vehicle assignment criteria, minimum annual vehicle utilization level goals, vehicle safety guidelines, vehicle operating practices, etc.

The Company acknowledges that the policies and procedures manual is outdated and that little priority has been given to updating the manual in a timely manner. Policies and procedures serve as administrative controls and provide guidance to operating personnel in support of Company and department

objectives. Without updated policies and procedures, operating practices may produce results that vary significantly from those objectives.

Recommendations

1. Customize the vehicle exception parameters based on the Company's fleet profile. Management should periodically review and update the parameters on a timely basis to properly identify vehicles operating inefficiently and to enforce fleet operating standards.

2. Conduct and document fleet cost activity and operating practice benchmarking studies on a periodic basis.

3. Update the vehicle management operating policies and procedures manual and periodically review and revise as necessary.

IV. ENERGY PROCUREMENT

Background

Subsequent to restructuring of the electric utility industry and the start of electric competition in Pennsylvania, the Company devised energy procurement strategies, which have yielded significant savings to date. Initiation of the Electric Choice Program resulted in the Company issuing a request for proposal (RFP) in November 1998 to six Pennsylvania-based Electric Generation Suppliers (EGSs) to provide electric service for approximately 66% of its system-wide load (387 of its 600 accounts). The low-cost provider selected from among the bidders enabled the Company to achieve first-year savings of approximately \$256,000. Additionally, prior to the open enrollment period for the Electric Choice Program, the Company negotiated a five-year contract with Allegheny Power for its Aldrich Water Treatment Plant (in the western part of the state) resulting in additional annual savings of \$84,000. Furthermore, as part of the electric industry restructuring agreement by the electric companies serving PAWC, the Company realized T&D rate reduction savings of approximately \$243,000. Overall, first-year savings from these initiatives totaled \$583,000, representing a reduction in energy costs of approximately 6%. Other efforts included installation of demand metering equipment at 29 of its largest electric consumption facilities in order to develop electric use profiles that will allow the Company to effectively negotiate future electric procurement contracts.

The Company has also indicated that, with the materialization of electric competition throughout different parts of the United States, American Water Works Company foresees future procurement of electricity on an aggregated basis for American Systems in six states (i.e., Pennsylvania, New Jersey, Illinois, California, New York, and Massachusetts) to achieve greater cost savings. In line with that vision, AWWC issued a RFP on October 28, 1999 to numerous EGSs on behalf of both PAWC and New Jersey-American Water Company to procure 100% of their aggregated load. It was anticipated that a contract would be executed by December 31, 1999.

Finding and Conclusion

Our examination of energy procurement included a review of the Company's procurement strategies, energy/electric consumption dollars by operating facility, electric choice program initiatives, internal energy management analyses, etc. We found these areas to be satisfactory except as follows:

1. The Company should conduct detailed energy audits for its 29 demand metered accounts as a follow-up to AWWSC's 1995 Energy Management Opportunities Study.

In 1995, American Water Works Service Company (AWWSC) issued a report entitled "Energy Management Opportunities in the American Water System" which evaluated a variety of strategies for reducing energy costs. Preliminary surveys were first conducted in order to collect information on annual water production, annual energy use, an inventory of equipment, and type of available monitoring and control systems to identify energy saving opportunities in the American Water Works System (AWWS). Based on the analysis of the survey results, detailed energy audits were then conducted at three AWWS (including the Pittsburgh and White Deer Systems in Pennsylvania) sites to identify applicable energy conservation measures (ECMs). The potential energy savings and implementation costs were estimated for each ECM. Based on the surveyed information and the results of the detailed energy audits, potential energy savings and implementation costs were extrapolated for the entire AWS.

The Pennsylvania sites selected for the study were at the Hays Mine Treatment Plant located in the Pittsburgh district and the Milton Water Treatment Plant located in the White Deer district. Cost-effective ECMs were defined as those meeting the financial feasibility criteria of a payback period of 5.9 years or less. The cost-effective ECMs identified for the Hays Mine audit consist of improving the efficiency of high service pumps, use of distributed control systems to control tank levels and installation of energy efficient lighting. These ECMs would result in a potential annual energy demand reduction of 743 kW and usage reduction of 1.9 million kWh were identified with an estimated annual cost savings of \$209,000. Based on an implementation cost of \$367,000, the estimated simple payback period would be 1.8 years. Additional ECMs requiring implementation costs of \$970,000 with annual savings of \$109,000 were identified but did not meet the minimum payback period criteria.

The Milton water treatment plant is one of two treatment plants that serve the White Deer district in Pennsylvania. The cost-effective ECMs identified include base loading the White Deer Creek treatment plant (i.e., designate the lower cost production facility as the primary supply to meet system demands while supplementing any additional demands with the higher cost production facility), installation of variable frequency drives and energy efficient motors for selected pumps, and operational changes to manage demand and installation of energy efficient lighting. These ECMs represent a potential annual energy demand reduction of 97 kW and usage reduction of 397,500 kWh with an estimated annual cost saving of \$38,200. Based on an implementation cost of \$17,600, the estimated simple payback period would be 0.46 years. Additional ECMs requiring

implementation costs of \$353,700 with annual savings of \$25,000 were identified but did not meet the minimum payback period criteria.

The detailed energy audits for these two Pennsylvania sites identified cost-effective ECMs for a combined savings of \$247,200, at a cost of \$384,600, representing a payback period of 1.5 years. Although estimated annual savings of \$801,650 and costs of \$3,257,400 have been extrapolated for the remaining Pennsylvania properties, which represents a payback period of 4.1 years, the Company has only performed a limited follow-up to the 1995 study. Specifically PAWC engineers have conducted energy cost saving analyses for its Montrose high service pumps and Brook Street pumps, and have partially completed an analysis for its North Abington and Wilson Street booster pumps.

As the majority of energy (typically 80%-90%) consumed in a water supply system is associated with the pumping of water, potential reductions in peak demand and total energy usage due to an efficient pumping program can result in significant energy savings. A common method of achieving an efficient pumping program is to conduct energy audits at pumping facilities in order to identify energy patterns and to evaluate strategies to reduce energy usage. A detailed energy audit consists of a complete inventory of equipment, an estimate of the distribution of demand and energy in the water system, and the identification of ECMs. The costs for the ECMs should be estimated and compared with the estimated energy savings to develop an implementation strategy. A follow-up program should then be conducted as an essential step of the audit in order to compare actual savings with the estimated savings.

The Company acknowledges that follow-up audits have not been conducted in a timely manner for its remaining facilities. However, as mentioned in the background section, continuous efforts (i.e., installation of demand meter equipment) are being made to monitor and analyze electric usage patterns that will enable the Company to alter operating procedures accordingly to achieve demand and usage rate reductions.

As a result of the detailed energy audits to date, the Company has already implemented some of the identified cost-effective ECMs for Hays Mine and the Milton Water Treatment plants, yielding annual savings of approximately \$122,000 of a possible \$247,000. Subsequent analyses conducted since the original study have identified additional annual savings of approximately \$27,000. Because energy charges (after employee expenses) represent the second highest operation and maintenance cost in the American Water Works System, management should aggressively pursue opportunities to further reduce energy expenses by completing the outstanding ECMs and conducting the detailed energy audits in a timely manner.

Recommendation

1. Conduct a current preliminary energy survey for its 29 demand metered accounts in order to identify potential energy audit candidate sites. Prioritize, schedule, and conduct energy audits for these sites in a timely manner based on the cost-effective energy conservation measures.

V. UNACCOUNTED-FOR-WATER

Background

The Company's unaccounted-for-water (UFW) program, formally developed in 1987, is modeled after the American Water Works Association's (AWWA) water audit loss program. This program is designed to identify, quantify, and verify water and revenue losses as well as prioritize the allocation of funds and manpower on an annual basis. As part of its UFW program, the Company maintains a group of eight employees dedicated full-time to leak detection efforts. These employees, referred to as leak detection specialists, survey approximately three miles of main on a daily basis as well as pinpoint known leaks. Over the past three years (1996-1998), the number of miles of main surveyed has gradually increased from 4,081 miles in 1996 to 4,783 miles in 1998. This 1998 survey level reflects approximately 63% of the total system mileage.

Supporting the Company's UFW program is an active main replacement program. Management personnel in their respective service districts review data continuously regarding the number of main breaks, the type pipe installed, age of the mains, water quality complaints, number of service disruptions, and liability claims in order to identify and prioritize main replacement candidates. Recent main replacement expenditures have ranged from \$14,951,000 in 1996 to \$20,400,000 in 1998 with budgeted expenditures of \$22,500,000 for the year 2000. These main replacement expenditures equate to approximately 36 to 47 miles of main replaced annually from 1996 through 1998, or an approximate 0.6% annual replacement of the miles of main in-service.

Table V-1 indicates that the Company reduced system-wide UFW percentages from a high of 27.1% in 1996 to a low of 20.7% in 1998. Through the twelve-month period ending July 1999, the Company further reduced unaccounted-for-water to 18.6%. Table V-1 shows that the greatest reduction occurred in the Northeast Region, or in the former Pennsylvania Gas and Water Company territory that PAWC acquired in 1996 (see Chapter X). The Company has established a future system-wide UFW goal of 15%, to be achieved by holding management employees accountable in their annual performance appraisals for achieving their respective Operating and District goals.

Table V-1
UFW percentages by Operation Region

Region	1996	1997	1998	1999*	% variance
Pittsburgh	26.5%	24.6%	23.4%	23.5%	-3.0%
West	17.3%	15.7%	12.7%	11.0%	-6.3%
East	13.5%	13.1%	13.6%	9.4%	-4.1%
Northeast	45.3%	36.1%	26.6%	22.5%	-22.8%
Total	27.4%	23.3%	20.7%	18.6%	-8.8%

*Twelve months ended July 31, 1999
Source: data request UFW-2

Findings and Conclusions

Our examination of unaccounted-for-water included a review of the Company’s UFW trends, policies and procedures, water audit loss program, main replacement program, annual goals and objectives, etc. We found these areas to be satisfactory except as follows:

1. A system-wide leak survey and repair database has not been developed.

Currently, monthly leak detection summary reports are generated on a operating region basis detailing the number of leaks located and repaired on mains, hydrants, services, valves, and meters. Additionally, daily leak location reports are generated by district which provide more specific data including locations surveyed, municipality/distribution map coordinates, pipe size and type, type of service area, sounding access points, sound recorded, and location of leak detected as well as any associated leak repair data including size of leak (gallons per minute), date repaired, type of leak, and estimated repair cost. Daily leak sounding reports by district also provide data regarding the number of valves, hydrants, curb stops, and street location as well as noise and/or leaks detected. As mentioned previously, the district operating personnel review this data on an annual basis in order to identify and prioritize main replacement candidates. However, the reports being reviewed are generated manually with no systematic means available for compiling and analyzing system-wide leak survey and repair data.

An electronic leak survey and repair database should be developed on a common platform in order to compile and analyze data on a district and system-wide basis. Network terminals residing in the district offices could then be utilized to input weekly data on a real-time basis. The data fields (i.e., number of leaks, number of breaks, water quality complaints, main size, cost of repairs, etc.)

could then be quickly compiled and utilized as input into the recommended main replacement prioritization model (see Finding and Conclusion No. V-2) to effectively identify main replacement candidates.

Company Management believes that maintaining the leak survey and repair data on a decentralized basis only is the appropriate procedure as it allows the local district personnel to identify and prioritize their main replacement candidates. However, the Audit Staff believes that compiling a Company-wide electronic database will provide for more efficient and standardized reporting of data and allow more effective statewide main replacement decision-making to be performed.

2. A formal main replacement prioritization procedure needs to be developed.

Main replacement expenditures have increased from \$14.9 million in 1996 to a projected \$22.5 million by year-end 2000, or at an annual compound growth rate of 10.8%. As shown in Table V-2, this main replacement expenditure trend represents a 30% increase in the number of miles of main replaced from 1996 to 1998.

**Table V-2
Main Replacement Statistics**

	1996	1997	1998	% change
System Miles of Main	7,345	7,465	7,589	3.3%
Annual Miles Retired/Replaced	36	42	47	30.0%
% of System Miles Retired Annually	0.49%	0.56%	0.62%	0.13%

Source: data request UFW-9

Expressed as a percent of miles retired/replaced to total system miles in-service, the Company has increased its replacement efforts from 0.49% to 0.62%. PAWC's retired/replaced percentages compare favorably to a water utility industry 1995 regional average of 0.5%, and are in-line with a water utility industry 1995 national average of 0.6%.

Although local district personnel consider factors such as number of leaks, age of mains, type of main material, water quality complaints, number of service disruptions, liability claims, and the timing of municipality street repaving programs in order to identify main replacement candidates, PAWC lacks a uniform and standardized documented approach to incorporating these factors into the decision-making process. The Company should develop a formal state-wide

main replacement prioritization procedure that incorporates the evaluation of main replacement candidates based on a weighted factor formula. Each factor should be assigned a weighted point value and aggregated in order to identify and effectively prioritize main replacement candidates. The factors to be considered should include, but not be limited to, the following elements: water quality, repair history, number of leaks and breaks, number of customers affected, age of the main, type of main material, customer complaints, etc.

The Company's position is that its existing informal main replacement selection process adequately considers the necessary factors to identify main replacement candidates. Additionally, the Company is concerned that a formula-based approach may continually direct main replacement funds to specific districts, thereby creating a negative perception of the Company in its districts receiving reduced investment.

However, the Audit Staff believes that implementation of a formal state-wide main replacement prioritization procedure would enhance the Company's ability to systematically and effectively identify mains in the most need of repair/replacement. Additionally, the implementation of a more formal state-wide main replacement prioritization procedure may reverse the current negative main break trend as shown in Table V-3.

**Table V-3
Main Break Statistics**

	1996	1997	1998	July-1999	% Change
No. of Main Breaks	2,450	2,801	3,015	1,954 (3,349)*	37.0%
Miles of System Main	7,345	7,465	7,589	7,589**	3.3%
# Miles per Main Break	2.99	2.66	2.51	2.26	-24.4%

*annualized

**year-ending/mid-year 1999 data was not available

Source: data request UFW-10

The number of miles per main break performance ratio, as indicated in Table V-3, has decreased by 24.4% from 1996 to 1999 (as projected). This ratio compares unfavorably to the latest available (1995) regional average of 3.25 miles per main break as well as to the trend of another major Pennsylvania water utility that achieved improving ratios of 3.11, 3.08, and 4.54 during 1996, 1997, 1998, respectively.

3. The Company has not conducted a cost/benefit study to determine the appropriate mix of contractor and in-house crews to be used to perform annual leak surveys.

The Company currently conducts its annual leak survey program utilizing only in-house personnel. Eight Leak Detection Specialists are dedicated full-time to performing leak surveys covering 32 service districts and 7,589 miles of main system-wide. Each Leak Detection Specialist is assigned a specially equipped van that contains more than \$65,000 of equipment such as correlators, sonic equipment, and aqua log sensors (which are unmanned nighttime sensors deployed on valve boxes in the middle of the night in order to gather data in normally high traffic areas). Over the past three years (1996-1998), the number of miles of main surveyed has gradually increased resulting in approximately 63% of the total system being surveyed annually. Annual company-wide leak detection operating activity goals include sounding 100 percent of all hydrants, 20 percent of system valves, and 33 percent of all service line control valves. Additionally, meter readers and servicemen as part of normal operating duties supplement the leak detection specialists in their leak surveying work.

While current leak detection activities have resulted in lower UFW levels, management has not conducted a cost/benefit study to support its current operating practices. A study should be conducted periodically to compare the costs and benefits of using contractors versus Company personnel to perform this work throughout the year. The study should also examine the potential benefits of using contractors seasonally to supplement or reduce the existing internal staffing. Factors to consider in the cost/benefit study would include, but not be limited to, the following factors: labor costs, equipment and associated maintenance/repair costs, vehicle and associated maintenance/repair costs, supervision costs, training costs, overhead costs, insurance and liability costs, and fuel costs necessary to conduct annual leak surveys.

PAWC expressed a belief that the use of contractors to perform leak surveys would be more costly than the current use of Company personnel. However, as contractors have not been used by PAWC for many years, the Company was unable to provide any support for its contention. By performing periodic studies regarding the appropriate extent of the annual leak surveying and the costs and benefits of using contractors rather than Company personnel to perform all or portions of this work, management would ensure that it is operating in the most cost-effective and efficient manner.

Recommendations

1. Develop an automated company-wide leak survey and repair database to be utilized with the recommended main replacement prioritization procedure.

2. Develop a formalized main replacement procedure based on weighted factors in order to systematically prioritize main replacement candidates on a state-wide basis.

3. Conduct a cost/benefit study on a periodic basis to determine the appropriate mix of contractors and in-house personnel to perform annual leak survey work.

VI. DROUGHT CONTINGENCY PLANNING

Background

On July 20, 1999, the Governor of Pennsylvania declared a drought emergency in 55 Pennsylvania counties. This declaration imposed certain non-essential water use restrictions on the residents and businesses in the drought affected areas. The proclamation of a drought emergency implements the state's drought emergency plan whereby each water supplier in a drought emergency county must review their existing drought contingency plans (DCPs), develop plans if none exist, and submit the plans to the Department of Environmental Protection. The DCPs should also contain the adoption of local water rationing plans where considered necessary to meet local conditions.

DCPs had been previously developed for each of the Company's 32 operating districts; however, pursuant to the Governor's Drought Emergency Proclamation the Company forwarded updated DCPs to the Department of Environmental Protection in August 1999 for review and approval. Each plan includes elements relating to drought vulnerability assessments at each of the district systems, defined drought trigger points for each of the district sources of supply, defined drought stages based on river flow rates, pumping rates, pumping levels, precipitation levels, etc. Drought scenario planning is also conducted as part of the Company's comprehensive planning studies, which include assessing system performance for one-in 50 year drought conditions.

The Company's water supply is provided principally from surface supplies such as rivers, streams, and reservoirs, which account for approximately 96% of its statewide source of supply. This supply mix enabled the Company to maintain adequate supply levels even during the summer of 1999 drought declaration. Source of supply development planning is an on-going activity at PAWC with any projected capacity deficits integrated into its comprehensive planning studies in order to ensure reliability.

Finding and Conclusion

Our examination of the drought contingency planning function included a review of the Company's most recently filed drought contingency plans, comprehensive planning studies, water rationing plans, water purchase agreements, consumer education and awareness programs, etc. We found these areas to be satisfactory except as follows:

1. Internal management planning documents have not been developed to support the Company's staged supply extension and demand reduction measures outlined in its Drought Contingency Plans.

A review of the Company's August 1999 Drought Contingency Plans (DCPs) revealed operational measures to be taken by the Company during each drought stage. These operational measures consist of supply extension and demand reduction measures, which are both designed to extend existing water supplies, develop additional supplies, and reduce demands. Supply extension measures include the purchase of water from adjacent water suppliers via interconnection; increasing the efficiency of the existing distribution system through accelerated leakage and loss reduction programs; the development and utilization of emergency sources of supply including commercial and industrial customers utilizing their own emergency sources of supply; and approved reduction of conservation releases. Demand reduction measures include a call for voluntary conservation; installation of household water conservation devices; accelerated public education programs; water reuse and greywater recycling; mandatory nonessential water use bans; water rationing; the possible shedding of customers; and prioritizing competing uses.

Although the supply extension and demand reduction measures include the elements discussed above, some of the measures are stated in a generic manner with no corresponding detail on the how to implement the measures. For example, one particular supply extension measure simply states "intensification of leak detection efforts during each progressive drought stage". No documentation is available within the DCP or internally within the Company to support the incremental actions to be taken to meet this objective. Similar circumstances apply to additional supply extension measures including operational curtailment (i.e., hydrant flushing, blow-offs, etc.) and system surveillance of unauthorized usage with no specificity regarding the defined tasks required to effectively accomplish these objectives. Demand reduction measures that are not sufficiently addressed on a consistent basis include the identification of customers to be shed and the prioritization of competing uses within the districts.

Planning documents are management tools that should be developed in order to organize, direct, and control activities to accomplish specific objectives in an efficient and effective manner. Although the vast majority of the Company's raw water supply is derived from surface supplies with adequate capacity reported even during the 1999 drought declaration, the Company should assess those operating districts historically susceptible to drought conditions. Subsequent to this risk assessment, management action plans should be developed for each of those districts. The action plans should provide supporting detail to accomplish specific supply extension and demand reduction measures indigenous to each of

the high risk operating districts to ensure that the resources are available to achieve the desired results.

The Company delegated responsibility to develop and execute the subject DCPs to each Operating District Manager utilizing the PA Department of Environmental Protection's model plan as a guideline. This practice resulted in the preparation of numerous plans with varying levels of detail, many of which only meet the minimum language requirements of the DEP model plan. Prudent management practices would dictate that the plans include detailed provisions for executing critical elements of the plans in order to maximize the effectiveness of the their implementation.

Recommendation

1. Develop internal management action plans to support the staged supply extension and demand reductions measures for those districts evaluated for drought vulnerability on a risk assessment basis.

VII. CUSTOMER CALL CENTER CONSOLIDATION

Background

PAWC's September 1, 1999 organization chart (see Exhibit VII-1) for Customer Service included a total of 113 full-time support personnel assigned to one of three regional call centers (West, East, and Northeast), plus a Director and one administrative support Secretary. The Director of the Customer Relations (whose office was relocated to Hershey, PA in September 1999) reports to the Vice President and Treasurer. The Director has three Superintendents reporting to him. Reporting to the Superintendents are the field support personnel, who perform customer billing, compliance, inquiry, and collection activities.

The support personnel in the call centers generally work staggered shifts from 8:00 a.m. to 6:30 p.m. In the Northeast Region only, emergency phone calls received from 6:30 p.m. through 12:00 p.m. are handled by a Company employee, but emergency calls from midnight to 8:00 a.m. are received by a contract answering service. For all other locations and/or regions, after-hours emergency phone calls (after 6:30 p.m.) are handled solely by outside contractor answering services.

At the time of the last PAWC management audit, which was completed for the Commission by Davies Associates, Inc. in 1992, the Company had seven customer service call centers. Davies recommended that the Company consolidate all of its customer service functions at the Hershey, PA headquarters. The current three call center structure has resulted from PAWC's acquisition of numerous Pennsylvania water companies over the intervening years. PAWC has incorporated their operations while at the same time slowly centralizing the customer service activities.

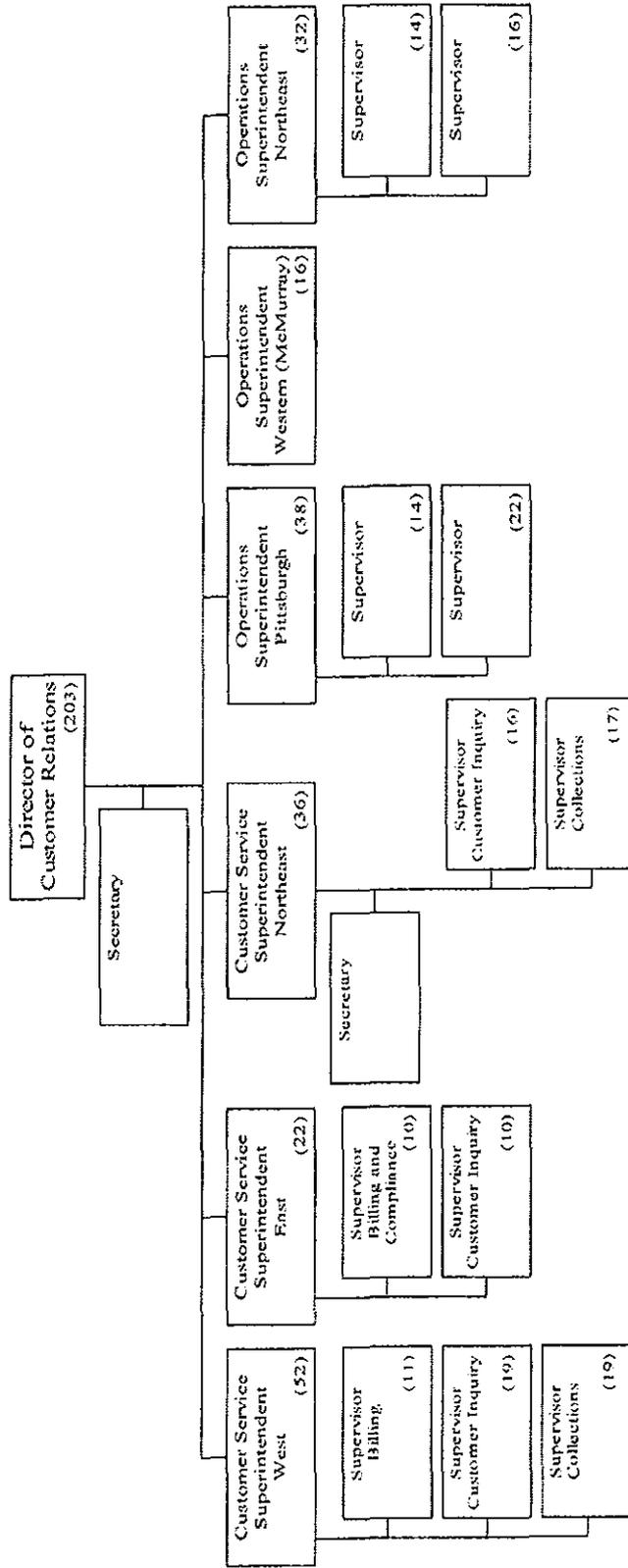
In anticipation of the expiration of the lease on its existing facilities in November 2000, PAWC acquired an office building on June 30, 1999, in Wilkes-Barre for \$900,000. The Company had anticipated renovating it for use as office space for its Northeast operations and existing call center. However, the Company has since abandoned these plans and decided to sell the building.

Findings and Conclusions

Our examination of Customer Call Center Consolidation included a review of the roles and responsibilities of employees; customer service call center policies, practices, and procedures; management initiatives; customer service

PENNSYLVANIA AMERICAN WATER COMPANY CUSTOMER SERVICE ORGANIZATION CHART

As of September 1, 1999



Source: Company Organization Charts

productivity measures; etc. We found these areas to be satisfactory except as following:

1. While the Company continues to take steps towards the consolidation of its call centers, management currently has no documented plan or cost/benefit analysis to support a particular consolidation strategy.

PAWC has continued to move forward with its efforts to consolidate the three remaining customer service call centers. Specifically, PAWC's senior management has visited other utility companies' call centers and attended seminars/conferences to better understand the efforts necessary to centralize to a single large call center. Management indicated that the knowledge gained from the experiences of others and a broad understanding of the capabilities of today's computerized technology will be of great value to the Company's consolidation efforts.

Although PAWC itself has no documented plans or analyses for consolidating the call centers, the Company informed the Audit Staff that a study was being prepared by American Water Works Company to evaluate the costs/benefits of a single, or several regional, call center(s) for the entire American Water System. Study results are anticipated in the third or fourth quarter of 2000.

Management is pursuing the consolidation of its call centers more vigorously than in the past due to a desire to stay competitive with other utilities and recognizing the economy and efficiency advantages which result. The Company indicated that it must maintain a strong customer service presence with its water and wastewater customers, and the best way to do so is to centralize its dispatching and call center operations. Management recognizes that all stakeholders will benefit from PAWC's efforts to develop a premier, cost-effective, highly productive customer service call center or centers that take advantage of a centralized workforce.

Consolidation of the call centers should enable PAWC to take advantage of at least five key technologies and/or capabilities:

- An Automatic Call Distribution (ACD) system with advanced capabilities, including skill-based routing which routes calls to the appropriate service representative based on the customer's response to recorded prompts.
- An automated forecasting/scheduling tool, to provide both real-time and historical data pertaining to worker productivity.

- Computer Telephony Integration (CTI), the marrying of the phone switch with the computer system, to enable a number of sophisticated applications such as intelligent routing and data mining.
- A quality monitoring device to record calls for performance review, and, in more advanced applications, measure callers' success at navigating their way through the Interactive Voice Response (IVR) menu selections, and
- Internet access through a web site that offers customers the option of taking care of utility business without making a phone call to the call center; i.e., reducing call center volumes through electronic (e)-commerce.

It appears that the overall result of consolidation to one call center, or several regional centers, would be more effective operations with efficiency gains and attendant cost savings.

Recommendations

1. Continue efforts to consolidate the existing customer service call centers. Management should complete and document detailed plans and cost/benefit analyses in support of the consolidation strategy chosen. Also, PAWC should formally track actual implementation costs and realized benefits from the consolidation, and retain these results for regulatory review.

VIII. METER READING

Background

PAWC has water customers in 31 Pennsylvania counties which are grouped into four regional service areas. The four service areas are Western, Pittsburgh, Eastern, and Northeast. There are 35 districts within these service areas which have field support personnel classified as Meter Readers, who perform meter reading functions on a full-time basis, and Utility Persons, who perform meter reading on a part-time basis and meter service and distribution duties the remainder of the time.

The full-time Meter Readers and other field personnel from the Pittsburgh and Northeast regional service areas, as well as a portion of the Western regional service area (McMurray only), are assigned to the Customer Service Department. These field personnel are from the more densely populated districts of PAWC's service territory. The Utility Persons are assigned to the Operations Department, and perform meter reading duties on a part-time basis in the Eastern regional service area and the remaining districts within the Western regional service area. These service areas contain PAWC's less densely populated or rural districts. Because such a large portion of PAWC's service territory encompasses rural communities throughout Pennsylvania, the Utility Persons report directly to an Operations Department Supervisor. This allows for more direct control and supervision of the employee's daily work and better use of the Operations Department workforce.

PAWC's number of full-time meter readers (see Table VIII-1) has been declining Company-wide as follows:

**Pennsylvania American Water Company
Number of Full-Time Meter Readers
Table VIII-1**

	1995	1996	1997	1998	1999 (through September)	% Decrease
PAWC	60	60	60	58	57	5.0%
PG&W acquisition	--	*18	17	16	15	*16.6%
Other acquisitions	--	--	--	--	--	--
Total PAWC	60	78	77	74	72	7.7%

* Because PG&W was purchased by PAWC in February 1996, the percent decrease reflects only a change from February 1996 through September 1999.
Note: Data does not include part-time readers and field support personnel performing activities such as meter repairs, replacements, and service orders.
Source: Company Data (DR MR-8).

As calculated in Chapter X, Table X-1, page 1 of 2, the Company's total average cost per employee is approximately \$57,000. Therefore, as a result of a reduction of six meter readers from 1996 through September 1999, PAWC realized annual cost savings of about \$342,000.

The decrease in meter reading personnel is attributable to increased productivity. PAWC has improved meter reading productivity by reducing the number of meter reading routes and the associated man-hours devoted to reading those routes. Since 1990, PAWC has installed remote mechanical encoder meters making meter readers more efficient and able to average a higher number of daily reads. In 1993, the Company began installing these in meter pits. This program was expanded into the Northeast service areas since PAWC's acquisition of PG&W in February of 1996 (see Chapter X). PAWC has also rerouted meter routes. For example, the Company eliminated almost 50% of the commercial routes in its Pittsburgh District by using pit and wall pads (which makes the reads readily accessible) and rerouting these accounts into the regular residential reading routes. As a result, the Pittsburgh District was able eliminate the need to have a second Meter Reader read within the same route. These efforts have helped the Company reduce the number of full-time man-hours devoted to reading meters shown below:

**Pennsylvania American Water Company
Number of Full-Time Man-Hours Devoted to Reading Meters
Table VIII-2**

	1997	1998	1999 (through September)
Total PAWC	184,586	165,566	117,245

Note: Data for 1995 was not available. Data for 1996 was only partially available because PG&W was purchased by PAWC in February 1996 resulting in two independent payroll systems in use at that time.
Source: Company Data (DR MR-9).

While this downward trend is not totally conclusive, the information available through September 1999 does indicate that man-hours for 1999 should be equal to, and probably less than those in 1998.

Rerouting in the Pittsburgh and McMurray service areas is continuing but on a much smaller scale, since routes in these areas have been reviewed many times in the past several years. Rerouting in the East and Northeast is ongoing, with significant progress made, especially in the old PG&W service territory. To assist management in these efforts, the Company uses ORCOM and EDIS software system packages to make the appropriate single account/premise modifications. As a result of PAWC's rerouting efforts, the Company has reduced the number of meter reading routes (see Table VIII-3) on a system-wide basis as follows:

**Pennsylvania American Water Company
Number of Meter Reading Routes
Table VIII-3**

	1995	1996	1997	1998	1999 (through September)	% Decrease
PAWC	1,359	1,222	1,152	1,140	1,139	16.2%
PG&W acquisition	--	*536	503	423	363	*32.3%
Other acquisitions	13	52	56	46	47	n/a
Total PAWC	1,372	1,810	1,711	1,609	1,549	n/a

* Because PG&W was purchased by PAWC in February 1996 the percent decrease reflects only a change from February 1996 through September 1999. Not applicable – n/a.
Source: Company Data (DR MR-8).

The above table shows that the largest recent impact has occurred in the service territories recently acquired by PAWC, especially in the areas added as a result of PAWC's purchase of PG&W in February 1996.

Findings and Conclusions

Our examination of Meter Reading was focused primarily on operations in the more densely populated districts and included a review of the roles and responsibilities of employees; meter reading policies, practices, and procedures; automatic meter reading (AMR) initiatives; etc. We found these areas to be satisfactory except as follows:

1. Further enhancements to meter reading productivity are still possible given the innovative automatic meter read (AMR) technologies available from outside vendors.

Since our management efficiency review in 1995, the Company has continued its AMR pilot programs by testing and employing new equipment and tools, evaluating emerging technology systems, and reviewing other practices currently used by the Company and other utilities to enhance the efficiency and effectiveness of the meter reading function. The results of these latest efforts and can be summarized as follows:

- The hand-held readers tested were too bulky for meter readers to hold with one hand; they processed data very slowly with the data itself frequently having to be entered manually because the probes did not properly connect to the outside receptacle; or the hand-held reader's software was not compatible with PAWC's customer service data base. As a result, PAWC is considering partial conversion to some form of wireless technology currently available on the market. Additionally AWWSC and PAWC are evaluating a written proposal to contract with a western Pennsylvania electric company and a meter network technology company to jointly read water and electric meters in the Pittsburgh area.
- The automatic telephone meter reading system was not year-2000 compatible (Y2K), and the manufacturer is no longer in business to upgrade the software. As a result, PAWC had to convert this pilot meter program to another, more user-friendly, system to achieve Y2K compliance.

- PAWC has achieved one of the lowest percentages of estimated bills of any AWWC operating subsidiary in the country, with such bills averaging only 1.3% of the monthly total water bills issued.

PAWC's management has been reluctant to adopt a system-wide AMR system until its state-of-the-art customer service software system is fully installed and tested. While the software was installed (October 1998) and functionally tested (through April 1999), some system software problems still exist, hindering efforts to make a decision on a fixed-network AMR system. Major AMR vendors continue to show a strong interest in meeting the PAWC's objectives by recalibrating their own equipment and software to become compatible with ORCOM. In fact, the new customer service software now operational at PAWC has become the standard, preferred software of choice for AWWSC and by other AWWC affiliated water and wastewater subsidiary companies.

In August, 1998, AWWSC established a five-member Ad-hoc Committee (PAWC's membership included the Director of Customer Service Department and a Operation's Superintendent from the Pittsburgh service area) to evaluate and report on the following:

- deployment of AMR technologies,
- expanding/improving customer service through AMR,
- development of financial models to allocate cost recovery if the cost of the system is borne entirely or partially by the local water company,
- identifying purchasing/contracting options which may facilitate installation of the equipment, and
- marketing options to other entities with the same service area; e.g., electric/gas utilities and home/office/business security systems.

The Ad-hoc Committee's Report, entitled *Advanced Meter Reading Report*, had been scheduled for submission to AWWSC's corporate executives by September 30, 1999; however, the Committee Chairman experienced delays in finalizing the report. The Committee was able to provide the Audit Staff with a confidential advance draft copy of this report in October 1999. The draft *Advanced Meter Reading Report* is an attempt at setting out a cost/benefit method and criteria for AWWC's water subsidiaries to evaluate the deployment of fixed-network AMR systems. The proposed cost/benefit evaluation process would provide PAWC and other AWWC subsidiaries with a means to systematically determine which routes can be cost effectively converted to an AMR system. In

addition, it would assist management to more accurately estimate the AMR installation and operating costs, and the anticipated short and long-term benefits.

The draft report indicates that appropriate AMR implementation could result in a significant reduction in the number of meter reading man-hours per year and ultimately, a reduction in the total number of Meter Readers. However, the report does not address labor, overhead, and fixed-system installation costs or implementation benefits. Nonetheless, the Audit Staff concurs with PAWC's stated intent to use the *Advanced Meter Reading Report* as the standard method for evaluating and comparing costs and benefits for deployment of the new technology within specific service area districts.

Recommendation

1. Perform, and document, a cost/benefit analysis for full and/or partial deployment of an automatic fixed-network meter reading (AMR) system; include an analysis of operating and capital expenses which reflect productivity improvements and staffing reductions that could be realized.

IX. COST ALLOCATIONS

Background

This chapter presents the results of the Audit Staff's review of the nature and extent of transactions between PAWC and its affiliates. As summarized in Chapter II – Background and shown on Exhibit II-2, PAWC is a subsidiary of American Water Works Company, Inc. (AWWC) and is an affiliate of American Water Works Service Company (AWWSC) which provides certain services to PAWC and 28 other AWWC subsidiaries. As AWWC's principal business is the ownership of the common stock of its subsidiary companies, its operating costs are fully absorbed directly by its shareholders with no charges billed to PAWC or any other subsidiary. However, American Water Works Service Company (AWWSC), AWWC's service subsidiary, does charge its operating companies, including PAWC, for the cost of the services it provides.

AWWSC's costs are assigned or allocated in accordance with the terms of uniform contracts the service subsidiary has with AWWC operating companies, including PAWC. The contracts provide that costs are to be directly assigned to specific operating companies to the extent possible, and costs not capable of direct assignment are to be allocated by applying a formula based on the relative number of water and/or wastewater customers served at the end of the previous fiscal year. The dollar amounts are electronically tracked using specific reference, account, and department numbers and accounting expense codes.

PAWC's current affiliated interest agreement, which defines the customer-based allocation process was filed with the Commission under the affiliated interest provisions of the Public Utility Code, and was approved by the Commission pursuant to an Order dated January 12, 1989, at Docket No. G-880131. The expenses resulting from this allocation formula are claimed by PAWC for general ratemaking purposes with the Commission.

The services provided by AWWSC to PAWC include: accounting, administrative, communication, corporate secretarial, engineering, financial, human resources, information systems, operations, rates and revenue, risk management, and water quality. These services are provided at actual cost and affords the affiliated companies professional and technical talent that may not otherwise be available from outside vendors more economically or on a timely basis. From 1995 through 1998, the total AWWSC expenses billed to Affiliates (including PAWC) grew by an annual compound rate of 0.9%. During this period of customer growth for PAWC, its share of AWWSC charges increased at an annual compound growth rate of 1.7%, and its percentage of AWWSC expenses at

a rate of 0.8%. AWWSC's expenses and PAWC's share of those expenses from 1995 through September 1999 are further summarized on Exhibit IX-1.

One of AWWSC's data centers leases a portion of the first floor of PAWC's Hershey headquarters building. This data center provides customer billing and envelope stuffing for PAWC and four other AWWC water utility subsidiaries. PAWC charges AWWSC for the related leasing of office space and computer equipment (see bottom of Exhibit IX-1).

AWWSC's Internal Audit (IA) Department has a staff of seven auditors who perform financial reviews of AWWSC and AWWC's water and wastewater operating subsidiaries. IA performs a review of the AWWSC's cost allocation and direct billing charges on a three-year cycle. The last audit report was issued February 18, 1998.

To supplement IA's three-year audit cycle, the PAWC Vice President and Comptroller personally reviews each month's AWWSC invoice billed to PAWC. According to the Vice President and Comptroller, any anomalies are brought to AWWSC's attention and corrected the next month. The Vice President indicated that the anomalies, if any, are usually minor (less than \$500).

Findings and Conclusions

Our examination of Cost Allocations was focused primarily on a review of cost allocation methodology; adherence to cost allocation policies, practices, and procedures; and intercompany billings. To better understand the billing process, the PUC Audit Staff performed a limited review of AWWSC's July 1999 invoice that was submitted to PAWC. This invoice, which summarized the month's \$488,996 of direct and allocated charges to PAWC, consisted of a detailed two-page computer generated document and was supported by 24 pages of cost details. To test that the charges were correct, the Audit Staff sampled vouchers and the allocation formulas, and traced the information back to the original source documentation. The Audit Staff found no discrepancies in the dollar charges or the formulas used to allocate the overhead costs. While our review was much more limited than the audit steps included in IA's audit program (see Finding and Conclusion No. IX-1), the Audit Staff found the allocation process was reasonable and that the resulting transactions reasonably reflected costs to PAWC. Overall we believe that PAWC's customer-based allocation system is reasonable given the volume of applicable transactions and the various allocation combinations.

Exhibit IX-1

Pennsylvania American Water Company
Statement of Expenses and Billed Charges To and From PAWC
For The Years Ended December 31, 1995 – 1998
And For 9-Months Ending September 30, 1999

<u>Description</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>Compound Growth 1995-1998</u>	<u>9-Months Ending Sept. 30, 1999</u>
Total AWWSC Expenses						
Corporate	\$ 10,352,793	\$10,065,316	\$18,858,357	\$21,029,834	26.6%	\$13,413,489
Executive Office	2,466,567	2,053,624	172,550	-	-100.0%	-
Regional Office	4,394,332	4,351,063	340,947	-	-100.0%	3,582,348
New Jersey	933,386	-	-	-	-100.0%	-
Indiana	842,884	-	-	-	-100.0%	-
Illinois	810,056	-	-	-	-100.0%	-
West Virginia	845,682	-	-	-	-100.0%	-
Pennsylvania	970,898	*	-	-	-100.0%	-
New England	1,078,221	1,015,251	916,698	717,133	-12.7%	587,440
California (Western)	3,567,495	3,724,140	4,284,006	4,581,748	8.7%	3,404,256
Laboratory (Belleville)	2,928,122	3,617,358	3,965,792	4,285,049	13.5%	3,621,143
Richmond Data Center	1,645,526	1,792,185	1,896,210	1,976,589	6.3%	1,260,493
Hershey Data Center	<u>2,350,317</u>	<u>1,819,844</u>	<u>1,567,642</u>	<u>1,519,908</u>	-13.5%	<u>1,005,519</u>
Total AWWSC Expenses Billed to All Affiliates, Including PAWC	<u>\$33,186,279</u>	<u>\$28,438,781</u>	<u>\$32,002,202</u>	<u>\$34,110,261</u>	0.9%	<u>\$26,874,688</u>
PAWC's Share of AWWSC Expenses						
PAWC's Share of Capital Construction	\$1,391,517	\$1,148,574	\$1,351,294	\$1,391,332	0.0%	\$916,637
PAWC's Share of Operation/ Maintenance Expenses	<u>4,704,238</u>	<u>4,215,771</u>	<u>4,841,192</u>	<u>5,023,148</u>	2.2%	<u>3,649,499</u>
Total PAWC's Share of AWWSC Expenses	<u>\$6,095,755</u>	<u>\$5,364,345</u>	<u>\$6,192,486</u>	<u>\$6,414,480</u>	1.7%	<u>\$4,566,136</u>
Total PAWC's % of AWWSC Expenses	18.37%	18.86%	19.35%	18.81%	0.8%	16.99%
PAWC Charges to AWWSC						
Total PAWC Expenses Billed to AWWSC for Office Space and Computer Equipment	<u>\$411,065</u>	<u>\$314,925</u>	<u>\$300,171</u>	<u>\$ 336,473</u>	-6.5%	<u>\$ 200,869</u>

* Key PA Executives were switched on 12/31/95 from AWWSC employee status to PAWC employee status.
Source: Company Supplied Financial and Operating Data (DR CA-4 and CA-8).

We also reviewed the roles and responsibilities of employees (including those of the Internal Audit Department) and the independent auditors with regard to cost allocations. We found these areas to be satisfactory except as follows:

1. Although the Internal Audit Department performs a periodic review of cost allocations and direct billing charges to/from AWWSC and PAWC, the audit report is not made readily available to PAWC and the other AWWC operating companies.

AWWSC's Internal Audit (IA) Department routinely performs financial audits on a three-year cycle. The basic components of IA's audit program to review cost allocation and billing issues include the following:

- Review the total billed charges for a test month and trace the billed charges to AWWSC's general ledger, the computer-generated billing and supporting cost details, and the operating companies' bills.
- Recalculate the basic overhead for the general, office, and equipment cost ratios; foot the payroll to the support totals; and then recalculate the ratios and trace them to the employee distribution report.
- Verify the formula percentages based upon the formula service allocation sheets.
- Test the operating companies and individual employee charges, and foot with monthly payroll amounts; then recalculate the totals and verify all hours and office expenses reported.
- Utilizing the same sample of tested individual employee charges and companies, verify the accuracy of expense statements, that the distributions to the companies were done correctly, and that the work orders were correctly stated.
- Foot the voucher/journal reports and compare with the detailed invoices for the month(s) sampled; and then test the voucher package, the amount distributed, the voucher register, and the journal entries from the register.

While the audit scope, work steps, and audit frequency appear reasonable, the current process for reporting and distributing the results could be improved. The latest audit report dated February 18, 1998 is brief (less than one page) and

not useful to operating company management as a business tool to assist in making operational decisions. Specifically, the audit report does not include a descriptive list of the transactions tested and reviewed, the accuracy of the recorded transactions, and whether they are consistent with management's authorization. The report simply lacks the detail necessary to adequately inform management of the audit scope and results. Moreover, while the 1998 audit report was submitted to senior executives of AWWSC, members of the management team at PAWC did not have a copy of it or even remember when the last audit was performed.

As AWWC and PAWC continue to acquire more water and wastewater companies, the IA audit program designed to review cost allocation and direct charge billings to/from AWWSC becomes more important to verify the accuracy and timing of changes to the allocation rates. As new customers are added to the AWWC system, the AWWSC costs are spread out over a larger customer base, thereby affecting the cost allocation formula percentages of all operating companies. PAWC's allocated costs are directly linked to the total number of AWWC customers.

For example, on July 1, 1999, PAWC's non-wastewater allocation percentage charge from AWWSC was reduced from 27.69% to 21.97% as a result of AWWC's merger with National Enterprises, Inc. (NEI). The merger added another 505,512 water customers to AWWC's existing customer base of 1,941,860. However, with PAWC's total customer base remaining relatively stable (537,662 non-wastewater customers), its share of the AWWSC cost allocation was reduced.

In addition to the recent purchase of NEI, AWWC has announced pending mergers with Citizens Utilities Company and SJW Corporation. The acquisition of Citizens would add 305,000 customers to the national customer base and 38,000 customers to PAWC's base, while the SJW acquisition and its subsidiary, San Jose Water Company of California, would add another 216,000 customers to the national customer base. Given these mergers the Audit Staff estimates that the impact to PAWC will be an additional allocation ratio decrease from 21.97% to approximately 19.39%.

Recommendations

1. Develop a more detailed internal audit report that clearly defines the audit scope and results, as well as any corrective actions recommended, for the periodic cost allocation and direct billing charge review. A copy of the audit

report should be routinely provided to PAWC and the other AWWC operating companies.

X. PG&W ACQUISITION

Background

PAWC purchased Pennsylvania Gas and Water Company's (PG&W) water operation on February 16, 1996, for \$409.4 million. This Northeast Pennsylvania acquisition increased PAWC's operating revenues by approximately 4.1% (\$7.4 million) and added approximately 4.6% (1.8 billion gallons) of water sales volume in 1996 as compared to 1995. PAWC accounted for the PG&W acquisition as a purchase, with the purchase paid by \$262.5 million in cash and the assumption of \$146.9 million in liabilities. The cash was obtained through issuance of short-term debt that was subsequently repaid with a portion of the proceeds from PAWC's offering of \$150.0 million of 30-year, 7.8% General Mortgage Bonds issued in 1996 and an equity infusion from American Water Works Company in that same year.

The water operations acquired from PG&W included 133,489 customers, 294 employees, 10 treatment plants, and 36 reservoirs. The tariff rates in the acquired territory were generally higher than PAWC's statewide tariff. The PAWC's most recent rate case submitted April 30, 1999, at R-00994638, proposed leveling the rates by converting its Northeast Pennsylvania customers from a multi-tiered tariff to a single tariff. PAWC has essentially operated the PG&W service area with former PG&W employees, except for two PAWC management employees who were transferred to the Northeast Region. While some general administrative and support functions were centralized in Hershey with PAWC's existing operations (i.e., general accounting, customer billing, financing, computer support, human resources, engineering, legal, etc.), other more basic field operation functions (i.e., meter reading, line maintenance and construction, customer inquiries and service calls, purchasing, etc.) remained in the Northeast Region. Overall, the Audit Staff found that this assimilation has gone smoothly.

Since the acquisition, the unaccounted-for-water percentages in the former PG&W service territory have decreased from 45.3% in 1996 to 22.5% for the first 6 months of 1999 (see Chapter V and Table V-1). This has, in part, resulted from PAWC honoring PG&W's requirement to annually invest \$4.9 million into distribution system improvements that resulted from a Commission order of August 1993, at Docket No. R-00922482. PAWC has proposed the elimination of this specific investment requirement in its most recent rate case filing, at R-00994638. The Company has established a \$16.6 million capital project to replace the Hillside Water Treatment Facility by the end of 1999, and also has established a five-year, \$14.02 million remote metering replacement program (see Chapter VIII) with completion scheduled by the end of the year 2000.

The addition of 133,489 customers from the acquisition has reduced the average cost per PAWC customer both for the allocation of costs from AWWSC the corporate service organization (see Chapter IX), and for PAWC executive management and other overhead activities. The acquisition has increased PAWC's customer base to over 525,000 active accounts.

Findings and Conclusions

Our examination of the PG&W Acquisition (water operations) was limited to a review of the operational impacts and the net savings and/or benefits achieved. This included the areas of: staffing levels, operations and maintenance payroll expenses, rate case expenses, financing costs, inventory management, fleet operations, unaccounted-for-water, and meter reading. Generally, we found that the acquisition has lowered PAWC's overall cost per customer and has had no negative impact on PAWC's original operations or those in the former PG&W service territory. In fact, the Audit Staff was able to identify improvements which have reduced the annual costs of the combined water operations by approximately \$7.6 million and inventory costs by \$253,805. The more significant savings are summarized in Exhibit X-1.

**Pennsylvania American Water Company
Impact of the PG&W Acquisition on Operations and
Maintenance Expenses for the Combined Companies**

<u>Function</u>	<u>Activity</u>	<u>Dollar Savings</u>
Staffing Levels	About one and one-half months before closing at December 31, 1995, PAWC had 827 employees and PG&W had 420 employees allocated to its water operations, or a total of 1,247 employees serving about 530,000 customers. PAWC's pro forma expense claim for the 1997 rate case (R-00973944) was based upon a workforce of 1,118, reflecting a reduction in the combined workforces of 129 employees, or 10.3%.	See O&M Payroll Expenses Below
O & M Payroll Expenses	PAWC's total payroll claim (capitalized and expensed) in the 1997 rate case was \$48,639,557. The average annual salary per employee was \$43,506, plus another 31% for benefit costs per employee (group insurance, 401(k), post-retirement benefits, payroll taxes, etc.), for a total average cost per employee of about \$57,000. Eliminating the need for 129 employees, as discussed in Staffing Levels above, has produced annual cost savings of approximately \$7.35 million which has been passed on to the ratepayers. Since about 13% of total payroll costs are capitalized, the immediate impact of this workforce reduction on annual operating and maintenance expenses is about \$6.39 million.	\$6,390,000 annual
Rate Case Expenses	PG&W maintained two primary rate tariffs and spent about \$1 million to process rate cases for the two. PG&W's financial plans indicated a need to process one rate case each year, alternating for each rate zone. Therefore, annual rate case expense savings were approximately \$500,000.	\$500,000 annual
Financing Costs	During the 1990s, PG&W issued \$129 million of first mortgage bonds and realized net proceeds of approximately \$123.4 million; financing costs consumed nearly \$5.6 million, or 4.3% of the nominal amount issued. PAWC issued \$412.9 million of long-term debt during that same period, and its financing costs were approximately \$4.47 million, or 1.1% of the gross issues. Assuming a \$10 million annual debt issuance, a 2.5% issuance cost decrease would result in an annual savings of \$250,000.	\$250,000 annual

Source: Company Data (DR AQ-1 and AQ-4).

Exhibit X-1
Page 2 of 2

**Pennsylvania American Water Company
Impact of the PG&W Acquisition on Operations and
Maintenance Expenses for the Combined Companies**

<u>Function</u>	<u>Activity</u>	<u>Dollar Savings</u>
Inventory Management	PAWC reduced PG&W's inventory level from \$1,038,115 (as of 2/96) to an average of \$783,310 (10/99) or by \$253,805. At a 10.62% cost to carry the inventory, annual savings would be \$26,954. PAWC indicated that additional improvements are still a possibility.	\$26,954 annual \$253,805 one-time
Fleet Operations	PAWC purchased 153 vehicles from PG&W on February 16, 1996, but eliminated 20 of them on June 28, 1996. Because PAWC is now leasing only 133 vehicles in PG&W's service territory, the annual lease savings is approximately \$151,388, plus an additional \$34,922 in annual variable operating savings. However, since 13% is capitalized (see O&M function), annual O&M savings equate to \$162,090 (\$186,310 x 87%).	\$162,090 annual
Unaccounted-For-Water (Chapter V)	PAWC's leak detection efforts within the former PG&W service territory resulted in a reduction in unaccounted-for-water from 45% in February 1996 to 22% by July 1999. Because of aggressive leak detection efforts and the ability to take advantage of bulk chemical purchasing/delivery, the Company, through 1998, was able to annually reduce its chemical costs by \$120,000 and carrying costs by \$12,744, for a total of \$132,744 in savings.	\$132,744 annual
Meter Reading (Chapter VIII)	Additional man-hours and expenses were initially needed to set up PG&W's meter rerouting schedules. However, since then, the rerouting efforts have decreased the number of routes from 536 (1996) to 363 (September 1999), and the number of meter readers has decreased from 18 to 15. Using the fully loaded rate of \$57,000 per reader (see O&M function), the annual savings are \$171,000.	\$171,000 annual
TOTAL SAVINGS	ANNUAL	\$7,632,788
	ONE-TIME	\$253,805

Source: Company Data (DR AQ-1 and AQ-4).

XI. DIVERSITY

Background

PAWC's President serves as the Equal Employment Opportunity (EEO) Officer while the Vice-President of Human Resources serves as the Company's EEO Coordinator and oversees the day to day implementation and monitoring of the Affirmative Action Plan (AAP). PAWC has been complying with the Commission's Diversity filing requirements last issued on May 23, 1994, at M-00940558 and updated in March 1997. The Company is submitting annual employee utilization statistics, annual AAPs, and annual procurement data related to use of Minority, Women and Persons with Disability Business Enterprise (MWDBE) vendors. The Company's AAP is updated annually to reflect changing diversity goals and objectives.

The latest Office of Federal Contract Compliance Program (OFCCP) audit report on PAWC's EEO program activities was issued on July 24, 1997. This audit, which focused on the Company's Pittsburgh operations, found no apparent deficiencies or violations of Federal Executive Order 11246. During our field work, the Company's Pittsburgh operations were undergoing another OFCCP audit.

PAWC's workforce statistics by EEO employment category, gender, and race for the years 1995 through 1998 are presented in Exhibit XI-1. The statistics show the impact of the 1996 PG&W acquisition on PAWC's female and minority employment levels in total, and as a percentage of the total workforce. From 1995 to 1998, the total number of PAWC employees increased from 824 to 1,085 or by 31.7%. The number of minority and non-minority employees increased from 56 to 57 or 1.8% and from 768 to 1028 or 33.9%, respectively, while the number of male and female employees increased 34% and 25%, respectively. As a percentage of the total workforce, female and minority employment levels both dropped.

Findings and Conclusions

Our examination of Diversity included a review of staffing trends; labor market comparisons; the procurement bidding process and purchasing trends; the Affirmative Action Plan; the latest diversity filings with the PUC; goals; policies and procedures; communication methods; management philosophy; and accountability. We found these areas to be satisfactory except as follows:

PENNSYLVANIA - AMERICAN WATER COMPANY
Number of Employees By EEO Category, Gender, and Race
For the Years 1995 - 1998

<u>EEO Job Categories</u>	<u>Total Company</u>				<u>% of 1998</u>	<u>Net</u>	<u>% of</u>
	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>Total</u>	<u>Increase</u>	<u>Change</u>
					<u>Company</u>		<u>1995-1998</u>
Officials and Managers	153	178	167	172	15.9%	19	12.4%
Professionals	20	37	27	29	2.7%	9	45.0%
Technicians	11	17	29	28	2.6%	17	154.5%
Sales Workers	0	0	0	0	0.0%	0	0.0%
Office and Clerical	196	262	259	245	22.6%	49	25.0%
Skilled	420	593	570	569	52.4%	149	35.5%
Semi-Skilled	21	23	38	40	3.7%	19	90.5%
Unskilled	3	3	2	2	0.2%	-1	-33.3%
Service Workers	0	0	0	0	0.0%	0	0.0%
Totals	<u>824</u>	<u>1113</u>	<u>1092</u>	<u>1085</u>	<u>100.0%</u>	<u>261</u>	31.7%

Source: Employer Information Reports (EEO - 1)

PENNSYLVANIA - AMERICAN WATER COMPANY
Number of Employees By EEO Category, Gender, and Race
For the Years 1995 - 1998

White Males

<u>EEO Job Categories</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>% of 1998 Total Company</u>	<u>Net Increase</u>	<u>% of Change 1995-1998</u>
Officials and Managers	128	151	146	146	84.9%	18	14.1%
Professionals	14	24	19	20	69.0%	6	42.9%
Technicians	6	7	13	12	42.9%	6	100.0%
Sales Workers	0	0	0	0	0.0%	0	0.0%
Office and Clerical	46	65	64	58	23.7%	12	26.1%
Skilled	359	525	499	503	88.4%	144	40.1%
Semi-Skilled	21	23	38	40	100.0%	19	90.5%
Unskilled	2	2	2	2	100.0%	0	0.0%
Service Workers	0	0	0	0	0.0%	0	0.0%
Totals	<u>576</u>	<u>797</u>	<u>781</u>	<u>781</u>	72.0%	<u>205</u>	35.6%
Totals as a Percent of Total Company	69.9%	71.6%	71.5%	72.0%		2.1%	

White Females

<u>EEO Job Categories</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>% of 1998 Total Company</u>	<u>Net Increase</u>	<u>% of Change 1995-1998</u>
Officials and Managers	20	21	16	23	13.4%	3	15.0%
Professionals	5	9	3	4	13.8%	-1	-20.0%
Technicians	5	10	16	16	57.1%	11	220.0%
Sales Workers	0	0	0	0	0.0%	0	0.0%
Office and Clerical	125	175	171	166	67.8%	41	32.8%
Skilled	36	40	43	38	6.7%	2	5.6%
Semi-Skilled	0	0	0	0	0.0%	0	0.0%
Unskilled	1	1	0	0	0.0%	-1	-100.0%
Service Workers	0	0	0	0	0.0%	0	0.0%
Totals	<u>192</u>	<u>256</u>	<u>249</u>	<u>247</u>	22.8%	<u>55</u>	28.6%
Totals as a Percent of Total Company	23.3%	23.0%	22.8%	22.8%		-0.5%	

Source: Employer Information Reports (EEO - 1)

PENNSYLVANIA - AMERICAN WATER COMPANY
Number of Employees By EEO Category, Gender, and Race
For the Years 1995 - 1998

Minority Males

<u>EEO Job Categories</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>% of 1998 Total Company</u>	<u>Net Increase</u>	<u>% of Change 1995-1998</u>
Officials and Managers	3	4	4	3	1.7%	0	0.0%
Professionals	1	3	3	3	10.3%	2	200.0%
Technicians	0	0	0	0	0.0%	0	0.0%
Sales Workers	0	0	0	0	0.0%	0	0.0%
Office and Clerical	8	4	5	4	1.6%	-4	-50.0%
Skilled	20	23	23	23	4.0%	3	15.0%
Semi-Skilled	0	0	0	0	0.0%	0	0.0%
Unskilled	0	0	0	0	0.0%	0	0.0%
Service Workers	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	0.0%	<u>0</u>	0.0%
Totals	<u>32</u>	<u>34</u>	<u>35</u>	<u>33</u>	3.0%	<u>1</u>	3.1%
Totals as a Percent of Total Company	3.9%	3.1%	3.2%	3.0%		-0.9%	

Minority Females

<u>EEO Job Categories</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>% of 1998 Total Company</u>	<u>Net Increase</u>	<u>% of Change 1995-1998</u>
Officials and Managers	2	2	1	0	0.0%	-2	-100.0%
Professionals	0	1	2	2	7.4%	2	
Technicians	0	0	0	0	0.0%	0	0.0%
Sales Workers	0	0	0	0	0.0%	0	0.0%
Office and Clerical	17	18	19	17	6.6%	0	0.0%
Skilled	5	5	5	5	0.9%	0	0.0%
Semi-Skilled	0	0	0	0	0.0%	0	0.0%
Unskilled	0	0	0	0	0.0%	0	0.0%
Service Workers	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0.0%</u>	<u>0</u>	0.0%
Totals	<u>24</u>	<u>26</u>	<u>27</u>	<u>24</u>	2.2%	<u>0</u>	0.0%
Totals as a Percent of Total Company	2.9%	2.3%	2.5%	2.2%		-0.7%	

Source: Employer Information Reports (EEO - 1)

1. PAWC's utilization of females and minorities remains below the availability levels in some of the local labor markets from which the Company hires its workforce.

The Audit Staff compared PAWC's 1998 female and minority employment percentages with those of the labor force in eight Pennsylvania Primary Metropolitan Statistical Areas (PMSA) from which the Company hires a majority of its workforce. The latest available U.S. Census information from 1990 showed that, on average, females comprised 19% and minorities 3.0% of the eight PMSA labor force markets. While the Company's total female and minority utilization percentages, 25.0% and 5.3%, respectively, are slightly above the overall relevant PMSA's labor force availability percentages, PAWC's utilization of females and minorities remains below the availability levels in some of the local labor markets from which the Company hires its workforce (see Exhibit XI-2). Specifically, this exhibit reveals that PAWC's female employee levels are below those of the relevant labor market for six of the eight PMSA locations; and that the minority employee levels are below the labor market for two of the eight PMSA locations.

PAWC should be striving to bring female and minority employment levels more in line with the availability of those groups in its local labor markets. Currently, however, PAWC's recruiting initiatives do not specifically target females or minorities. Furthermore, while the Company claims there is accountability at the management levels it is informal at best. Also, at the time of our fieldwork, there were no formal initiatives to encourage female and minority employment in skilled positions. Without specific documented goals, plans, and management accountability, PAWC will have a difficult time improving its female and minority employment levels within the various geographic PMSA locations.

2. The Company has not established annual MWDBE procurement goals.

As shown in Exhibit XI-3, there are positive trends in total MWDBE procurement amounts. From 1994 through 1998, overall Minority Business Enterprise (MBE) purchases increased from \$18,936 to \$612,479, or at an annual compound rate of 139%. Overall Women Business Enterprise (WBE) purchases during that period increased from \$290,164 to \$3,836,277, or at an annual compound rate of 91%, while Disability Business Enterprises (DBE) purchases have remained virtually non-existent. Total MWDBE purchases over the time period increased from \$309,100 to \$4,448,981, or at an annual compound growth rate of 95%.

Exhibit XI -2

PENNSYLVANIA - AMERICAN WATER COMPANY
Comparison of 1998 Female and Minority
Employment Percentages with the
Relevant PMSA Labor Force

Females

<u>Geographic Headquarters Location</u>	<u>PAWC</u>	<u>Relevant PMSA Labor Force</u>	<u>PAWC Utilization as a % of PMSA Labor Force</u>
Pittsburgh	14.9%	22.4%	67%
McMurray	39.1%	22.2%	176%
New Castle	20.5%	26.9%	76%
Indiana	14.8%	18.3%	81%
Norristown	23.1%	30.7%	75%
Mechanicsburg	33.1%	16.6%	199%
Wilkes-Barre/Scranton	17.9%	19.5%	92%
Hershey-Corporate	36.1%	43.3%	83%
Weighted Average *	25.0%	19.0%	132%

Minorities

<u>Geographic Headquarters Location</u>	<u>PAWC</u>	<u>Relevant PMSA Labor Force</u>	<u>PAWC Utilization as a % of PMSA Labor Force</u>
Pittsburgh	10.5%	7.3%	144%
McMurray	7.7%	2.3%	335%
New Castle	6.8%	0.7%	971%
Indiana	1.9%	1.4%	136%
Norristown	5.8%	4.9%	118%
Mechanicsburg	5.5%	4.7%	117%
Wilkes-Barre/Scranton	1.0%	1.9%	53%
Hershey-Corporate	4.5%	6.2%	73%
Weighted Average *	5.3%	3.0%	177%

* Weighted average was calculated by PAWC using OFCCP guidelines.

Source: PAWC Report on Diversity to the PAPUC - April 1999

PENNSYLVANIA - AMERICAN WATER COMPANY
Total Utility Purchases for Minority, Women,
and Disabled Person Businesses
For the Years 1994 - 1998

TOTAL COMPANY

<u>YEARS</u>	<u>PAWC's Total Purchases*</u>	<u>MBE</u>		<u>WBE</u>		<u>DBE</u>		<u>Total MWDBE</u>	
		<u>Annual Purchases</u>	<u>% of Total Purchases</u>						
1994	\$51,274,698	\$18,936	0.0%	\$290,164	0.6%	\$0	0.00%	\$309,100	0.6%
1995	\$51,196,351	\$117,916	0.2%	\$638,258	1.2%	\$0	0.00%	\$756,174	1.5%
1996	\$64,440,486	\$67,264	0.1%	\$2,551,840	4.0%	\$26,063	0.04%	\$2,645,167	4.1%
1997	\$83,403,518	\$481,787	0.6%	\$2,967,880	3.6%	\$435	0.00%	\$3,450,102	4.1%
1998	\$95,537,839	\$612,479	0.6%	\$3,836,277	4.0%	\$225	0.00%	\$4,448,981	4.7%
Compound Growth	16.8%	138.5%		90.7%		0.0%		94.8%	66.7%
Net Increase/Decrease	\$44,263,141	\$593,543	0.6%	\$3,546,113	3.4%	\$225	0.0%	\$4,139,881	4.1%

* Excludes bank and transaction service fees, utility costs, and services purchased from AWWSC and other associated AWC companies.

Despite the positive trends in total MWDBE procurement dollars, MWDBE purchases as a percentage of total Company purchases have remained relatively flat since the 1996 acquisition of PG&W. From 1996 to 1998, total MWDBE purchases as a percentage of total purchases increased from 4.1% to 4.7%, or by only 0.6%. Furthermore, MBE purchases as a percentage of total purchases increased modestly from 0.2% in 1995 to 0.6% in 1998, while WBE purchases as a percentage of total purchases remained relatively flat at 4%.

The Audit Staff found that the EEO Officer and Coordinator currently set the MWDBE policy and the Regional Operating Managers retain control over the procurement process in each of their respective regions. However, these personnel do not collectively establish procurement goals in order to measure the success of the program. Instead, the success of the program has been primarily measured with respect to increases in overall MWDBE dollar purchases and success in distributing the procurement dollars among as many vendors as possible.

Annual diversity procurement goals should be set for the Company as a whole and for each region with accountability established for each of the four Regional Operating Managers. The goals should be based on ratios such as MWDBE dollars as a percentage of overall purchases rather than on total MWDBE dollars alone. These goals would provide the stimulus to improve the diversity procurement levels relative to total purchases.

3. The Company's minority vendor listing is outdated and lacks integration with the purchasing process.

Subsequent to the Commission's Diversity Order in 1992, the Company retained a consultant in 1994 to identify MWDBE vendors. This work resulted in an initial MWDBE vendor list. The list, comprised of approximately 40-50 MWDBE vendors, is maintained in a database on the Company's purchasing system. However it has not been integrated into the purchasing process. Currently, the Company relies upon the Regional Operating Managers' discretion to manually peruse the minority vendor list and to incorporate these vendors into the bidding process.

In April 1998, PAWC, as a participant of the PUC's Utility Diversity Action Committee (UDAC), contributed to the development of a comprehensive list of MWDBE vendors used by every utility (i.e., gas, water, electric, and telephone) in Pennsylvania. This UDAC list reflects approximately 1,700 MWDBE vendors utilized by the four major utility groups in Pennsylvania. To date, PAWC has not reviewed and updated the UDAC list to reduce the number of vendors to an effective working list for its needs.

The Company should update its minority vendor list by identifying the

UDAC vendors applicable to its operations and integrate the updated list into the purchasing process in order for the Regional Operating Managers to accomplish the annual MWDBE procurement goals as per Recommendation No.2 below. To integrate the list with the purchasing process, MWDBE vendors should be automatically identified by service or commodity and incorporated into the bidding process as a means to elevate the diversity procurement levels.

The Company stated that it has not updated its minority vendor list due to the recent development of the UDAC list. Also, the Company was initially unsure if the MWDBE vendor list could be integrated into its purchasing system. Upon inquiry with its purchasing system vendor, the Company was informed that custom source code modifications could be made to accomplish the integration. However, the Company indicated that further research was necessary to determine the costs involved to perform the modifications.

By periodically updating the MWDBE vendor list and integrating it into the purchasing software, the Company should be able to increase the overall diversity procurement levels and potentially achieve procurement levels closer to those of two similar Pennsylvania water utilities. The most recent data available for those water utilities indicates overall MWDBE procurement levels of approximately 8%, or roughly 58% higher than PAWC's levels.

Recommendations

1. Set goals with timetables for increasing the Company's female and minority employment percentages, especially for the Pittsburgh, Wilkes-Barre/Scranton, and Hershey-Corporate geographic locations.
2. Develop annual MWDBE procurement goals with accountability established at the Regional Operating Manager level.
3. Update the Company's MWDBE vendor list and integrate it into the purchasing process, and establish a process to ensure that the MWDBE vendor list remains current in the future.

XII. ACKNOWLEDGEMENTS

We wish to express our appreciation for the cooperation and assistance given to us during the course of this Focused Management Audit by the officers and staff of the Pennsylvania American Water Company.

This audit was conducted by staff of the Bureau of Audits. Participants in the audit process were John Clista and J. Alan Gardocky.

XIII. APPENDIX

ITEM	APPENDIX NUMBER
<u>PAWC Internal Trending Data</u>	
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Appendix I
PENNSYLVANIA-AMERICAN WATER COMPANY
INCOME STATEMENT DATA
FOR THE YEARS ENDED DECEMBER 31, 1994 - 1998

Category	1994	1995	1996	1997	1998	Compound Growth
WATER REVENUES						
Residential	\$ 109,463,547	\$ 114,820,414	\$ 153,162,219	\$ 162,974,255	\$ 176,155,034	12.6%
Commercial	31,495,971	33,385,581	45,543,340	48,456,872	53,959,875	14.4%
Industrial	13,190,932	13,570,169	19,162,344	19,459,801	21,852,820	13.5%
Fire Protection	5,636,241	5,915,160	9,878,896	10,997,892	11,088,005	18.4%
Other Public Authorities	7,921,020	8,224,865	9,116,368	9,754,747	12,006,358	11.0%
Other Water Utilities	2,014,698	2,043,288	2,211,743	2,267,765	2,196,295	2.2%
Miscellaneous	2,833,479	2,478,943	3,217,222	3,551,216	3,358,800	4.3%
Total Water Revenues	172,555,888	180,438,420	242,292,132	257,462,548	280,617,187	12.9%
WATER OPERATING EXPENSES						
Source of Supply	6,596,535	6,792,641	5,963,666	3,226,830	2,889,246	-18.6%
Power and Pumping	9,651,325	9,422,978	11,047,721	11,227,026	10,374,434	1.8%
Purification	11,147,450	11,448,546	17,647,668	18,788,158	20,015,905	15.8%
Transmission and Distribution	15,346,793	14,643,892	18,969,882	21,211,501	20,664,307	7.7%
Customers' Accounting and Collecting	11,214,594	12,400,028	16,119,297	17,674,294	16,403,963	10.0%
Administration and General	28,697,696	29,602,497	35,923,664	34,407,817	36,174,017	6.0%
Total Water Operating Expenses	82,654,393	84,310,582	105,671,898	106,535,626	106,521,872	6.5%
OPERATING INCOME						
	\$89,901,495	\$96,127,838	\$136,620,234	\$150,926,922	\$174,095,315	18.0%

Source: Schedule 200C., Form PUC 244, Annual Report To The PA PUC

Appendix II
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PENNSYLVANIA-AMERICAN WATER COMPANY
BALANCE SHEET DATA
FOR THE YEARS ENDED DECEMBER 31, 1994 - 1998

Category	1994	1995	1996	1997	1998	Compound Growth
UTILITY PLANT	\$740,624,008	\$ 817,894,778	\$ 1,277,674,034	\$ 1,368,546,564	\$ 1,458,856,638	18.5%
INVESTMENT AND FUND ACCOUNTS						
Other Physical Property	1,264,808	1,054,308	965,083	968,654	913,461	-7.8%
Investments in Affiliated Companies						
Other Investments						
Sinking Funds						
Total Investment and Fund Accounts	1,264,808	1,054,308	965,083	968,654	913,461	-7.8%
CURRENT AND ACCRUED ASSETS						
Cash	0	0	5,225,646	0	0	
Special Deposits	73,300	111,850	191,340	293,975	136,172	16.7%
Working Funds	114,285	14,505	8,935	4,200	3,350	-58.6%
Temporary Cash Investments			1,195			
Notes Receivable						
Accounts Receivable	13,486,048	15,680,957	23,822,194	23,143,488	26,236,851	18.1%
Receivable from Affiliated Companies	66,289	12,886	279	9,400	4,379	-49.3%
Accrued Utility Revenues	9,294,544	9,156,363	15,141,321	15,983,681	17,119,464	16.5%
Materials and Supplies	1,284,207	1,371,713	2,473,485	2,615,864	2,806,023	21.6%
Prepayments	1,440,345	1,261,899	1,454,558	1,785,570	1,675,111	3.8%
Other Current & Accrued Assets	2,494,724	2,581,920	3,185,076	3,554,101	2,607,668	1.1%
Total Current and Accrued Assets	28,253,942	30,192,093	51,504,029	47,390,279	50,589,018	15.7%
DEFERRED DEBITS						
Unamortized Debt Discount and Expense	1,956,124	1,872,308	8,752,395	8,793,950	8,290,584	43.5%
Other Deferred Debits	102,072,551	100,057,666	120,291,187	119,202,812	123,788,767	4.9%
Total Deferred Debits	104,028,675	101,929,974	129,043,582	127,996,762	132,079,351	6.2%
Total Assets and Other Debits	\$874,171,433	\$951,071,153	\$1,459,186,728	\$1,544,902,259	\$1,642,438,468	17.1%

Appendix II
page 2 of 2

PENNSYLVANIA-AMERICAN WATER COMPANY
BALANCE SHEET DATA
FOR THE YEARS ENDED DECEMBER 31, 1994 - 1998

Category	1994	1995	1996	1997	1998	Compound Growth
CAPITAL STOCK	\$ 166,708,599	\$ 126,476,499	\$ 126,235,299	\$ 125,974,299	\$ 127,445,699	4.5%
LONG-TERM DEBT						
Bonds	285,520,000	299,510,000	570,122,181	598,285,332	591,355,863	20.0%
CURRENT AND ACCRUED LIABILITIES						
Notes Payable	19,121,279	34,098,964	-	1,872,162	36,323,743	17.4%
Current Portion of Long-term debt	16,010,000	10,010,000	19,818,195	4,834,093	8,000,000	-15.9%
Accounts Payable	7,726,526	7,496,666	12,323,432	9,822,192	15,349,900	18.7%
Payable to Affiliated Companies	34,353	341,063	84,827	142,427	219,279	58.9%
Dividends Declared	354,785	348,810	345,585	341,952	338,720	-1.2%
Customers' Deposits	1,173	1,173	1,141	1,141	1,141	-0.7%
Taxes Accrued	1,062,956	107,230	3,498,314	4,308,855	4,646,903	44.6%
Interest Accrued	7,246,685	7,064,987	11,500,591	11,863,006	12,010,489	13.5%
Other Current and Accrued Liabilities	5,601,035	5,246,228	7,298,715	10,758,496	9,847,991	15.2%
Total Current and Accrued Liabilities	57,158,792	64,715,121	54,870,800	43,944,324	86,738,166	11.0%
DEFERRED CREDITS						
Deferred Income Taxes	118,202,412	120,942,979	131,044,622	146,466,331	159,958,851	7.9%
Customers' Advances for Construction	41,871,107	43,929,026	45,854,925	48,531,456	51,105,533	5.1%
Other Deferred Credits	17,741,590	16,199,933	18,270,486	19,810,117	21,044,876	4.4%
Investment Tax Credit	10,278,004	10,044,412	9,810,820	9,577,228	9,343,636	-2.4%
Total Deferred Credits	188,093,113	191,116,350	204,980,853	224,385,132	241,452,896	6.4%
RESERVES						
Reserve for Depreciation of Utility Plant	95,000,404	112,838,981	158,714,452	179,421,548	208,951,600	21.8%
Res. for Dep. & Amort. of Other Property	274,943	199,992	212,802	229,759	263,153	-1.1%
Reserve for Uncollectible Accounts	181,132	150,390	213,331	252,624	348,318	17.8%
Total Reserves	95,456,479	113,189,363	159,140,585	179,903,931	209,563,071	21.7%
CONTRIBUTIONS IN AID OF CONSTRUCTION						
Contributions in Aid of Construction	32,551,900	41,342,684	43,458,816	44,199,674	46,113,314	9.1%
SURPLUS						
Capital Surplus	7,452,325	7,452,326	182,565,831	199,580,491	199,596,924	127.5%
Earned Surplus	101,230,225	107,268,810	117,812,363	128,629,076	140,172,535	8.5%
Total Surplus	108,682,550	114,721,136	300,378,194	328,209,567	339,769,459	33.0%
Total Liabilities and Other Credits	874,171,433	951,071,153	1,459,186,728	1,544,902,259	1,642,438,468	17.1%

Source: Schedule 200., Form PUC 244, Annual Report To The PA PUC

Appendix III
PENNSYLVANIA-AMERICAN WATER COMPANY
UTILITY PLANT DATA
FOR THE YEARS ENDED DECEMBER 31, 1994 - 1998

Category	1994	1995	1996	1997	1998	Compound Growth
INTANGIBLE PLANT						
Organization	\$ 230,987	\$ 230,987	\$ 284,095	\$ 284,095	\$ 284,094	5.1%
Franchises and Consents	254,273	472,475	777,544	777,544	1,514,283	59.4%
Miscellaneous	56,181	1,429,159	1,480,881	1,501,075	1,513,081	127.8%
Total Intangible Plant	521,441	2,132,621	2,542,520	2,562,714	3,311,458	58.7%
TANGIBLE PLANT						
Water Rights	291,470	291,470	452,852	446,782	n/a	n/a
Reservoir Land	202,415	202,415	845,745	844,245	n/a	n/a
Other Source of Supply Land	406,213	425,301	431,043	461,359	1,757,388	n/a
Power and Pumping Land	574,274	597,831	823,125	545,993	n/a	n/a
Purification Land	1,060,909	1,105,324	2,157,956	1,234,877	1,956,376	n/a
T & D Land and Rights of Way	3,391,935	3,507,015	3,941,610	4,043,636	3,783,861	2.8%
Distribution Reservoir and Standpipe Land	601,930	639,038	961,471	961,471	1,467,057	24.9%
Office Land	1,293,572	1,290,411	1,290,411	1,290,411	2,050,610	12.2%
Stores, Shop, and Garage Land	423,983	423,983	472,649	695,536	n/a	n/a
Total Land and Land Rights	8,246,701	8,482,968	11,326,862	10,524,310	11,015,292	7.5%
Structures and Improvements:						
Collecting and Impounding Reservoirs	5,531,922	7,407,128	26,659,904	27,087,750	27,087,750	48.8%
Lake, River, and Other Intakes	3,965,878	5,927,896	6,995,880	16,305,663	16,545,470	42.9%
Wells and Springs	2,525,880	2,714,991	2,468,465	2,452,518	2,569,227	0.4%
Other Water Source Structures	703,230	840,347	1,001,280	996,884	1,059,602	10.3%
Power and Pumping Structures	11,022,066	13,190,265	18,587,379	23,807,042	n/a	n/a
Purification Buildings	40,090,785	42,143,425	98,685,475	169,088,983	134,980,397	35.5%
Distribution Reservoirs and Standpipes	25,907,204	26,798,985	47,112,508	50,273,329	51,252,743	18.9%
Office Buildings	12,875,857	13,038,043	13,095,545	13,034,346	21,055,192	n/a
Stores, Shop, and Garage Buildings	7,237,084	7,239,569	7,429,843	7,626,824	n/a	n/a
Miscellaneous Structures and Improvements	125,674	125,674	275,964	298,792	49,425	-20.8%
Total Structures and Improvements	109,985,580	119,446,323	222,312,243	250,972,131	255,059,806	23.4%
Additional Tangible Plant:						
Other Power Production Equipment	257,096	257,096	258,236	1,201,937	1,204,609	48.9%
Electric Pumping Equipment	22,336,670	25,082,653	32,831,168	36,717,217	38,970,498	14.9%
Oil Engine Pumping Equipment	320,682	319,809	389,690	390,067	n/a	n/a
Hydraulic Pumping Equipment	n/a	n/a	5,592	5,592	n/a	n/a
Other Power Production Equipment	14,855	14,855	19,994	19,994	n/a	n/a
Purification System	99,147,364	106,286,248	153,673,823	168,007,500	171,366,777	14.7%
Laboratory Equipment	1,774,997	2,015,298	3,285,601	3,719,783	3,847,595	21.3%
Mains and Accessories	330,989,706	369,293,863	551,463,049	581,097,231	622,569,064	17.1%
Meters	77,296,760	86,900,547	144,869,713	154,851,565	165,455,504	20.9%
Fire Hydrants	34,164,070	37,456,181	50,928,182	57,853,242	66,157,799	18.0%
Office Furniture and Equipment	13,804,212	15,021,270	22,211,730	23,306,679	24,709,737	15.7%
Transportation Equipment	12,365,096	13,348,138	15,188,589	16,805,060	21,375,139	15.2%
Stores Equipment	98,446	161,411	2,413,665	1,718,422	906,914	74.2%
Shop Equipment	222,389	221,285	223,478	211,951	n/a	-1.2%
Tools and Work Equipment	4,053,670	4,337,812	6,480,625	6,681,517	7,051,531	15.6%
Communication Equipment	847,820	1,441,343	1,876,971	2,428,815	2,509,782	31.2%
Miscellaneous Equipment	2,527,807	2,708,669	3,374,845	3,715,596	4,417,045	15.0%
Total Additional Tangible Plant	600,221,940	694,906,438	989,491,551	1,088,730,663	1,131,213,946	17.2%
Total Water Plant in Service	718,975,562	794,968,550	1,225,676,176	1,322,789,818	1,400,600,502	18.1%

Source: Schedules 800, 2003, Form PUC-241, Annual Report To The PA PUC

Appendix IV

PENNSYLVANIA-AMERICAN WATER COMPANY
TOTAL WATER OPERATING EXPENSES
FOR THE YEARS ENDED DECEMBER 31, 1994 - 1998

Category	1994	1995	1996	1997	1998	Compound Growth
Source of Supply:						
Operation	\$ 420,006	\$ 395,546	\$ 407,552	\$ 314,922	\$ 494,635	4.2%
Maintenance	166,371	117,900	260,262	270,347	323,577	18.1%
Miscellaneous	6,010,158	6,279,196	5,295,852	2,641,561	2,071,034	-23.4%
Total	6,596,535	6,792,641	5,963,666	3,226,830	2,889,246	-18.6%
Power and Pumping:						
Operation	751,626	694,586	973,168	791,806		1.8%
Maintenance	517,921	564,249	665,273	618,231		6.1%
Miscellaneous	8,381,778	8,164,143	9,409,281	9,816,988	10,374,434	5.5%
Total	9,651,325	9,422,978	11,047,722	11,227,025	10,374,434	1.8%
Purification:						
Operation	9,610,051	9,799,778	15,432,492	15,945,996	16,624,126	14.7%
Maintenance	1,513,342	1,638,630	2,164,857	2,774,909	3,390,847	22.3%
Miscellaneous	24,057	10,138	50,319	67,254	932	-55.6%
Total	11,147,450	11,448,546	17,647,668	18,788,159	20,015,905	15.8%
Transmission and Distribution:						
Operation	6,642,850	6,385,125	7,422,321	7,595,065	7,593,019	3.4%
Maintenance	8,470,203	8,067,523	11,108,892	13,161,819	13,071,288	11.5%
Miscellaneous	233,740	191,244	438,670	454,617	-	-100.0%
Total	15,346,793	14,643,892	18,969,883	21,211,501	20,664,307	7.7%
Customers' Accounting & Collecting:						
Supervision	688,297	877,918	1,191,716	1,174,827		19.5%
Customers' Contracts and Orders	1,387,314	1,420,460	1,501,126	1,426,297		0.9%
Meter Reading	2,472,334	2,600,761	3,198,690	3,250,399		9.5%
Collecting	1,342,527	1,415,486	1,712,041	1,784,483		10.0%
Customers' Billing and Accounting	2,339,372	2,610,198	3,137,983	2,965,006		8.2%
Miscellaneous	1,986,311	2,251,357	3,657,192	3,930,557	2,031,720	0.6%
Uncollectible Accounts	998,439	1,223,848	1,720,549	3,142,726	2,599,599	27.0%
Other					11,772,644	
Total	11,214,594	12,400,028	16,119,297	17,674,295	16,403,963	10.0%
Sales Promotion:						
Total	-	-	-	-	-	
Administration & General:						
Total	28,697,696	29,602,497	35,923,664	34,407,818	36,174,017	6.0%
Total Water Operating Expenses	82,654,393	84,310,582	105,671,900	106,535,628	106,521,872	6.5%

Source: Schedule 826, Form PUC 244, Annual Report To The PA PUC

PENNSYLVANIA-AMERICAN WATER COMPANY
CUSTOMER RELATED DATA BY CLASSIFICATION
FOR THE YEARS ENDED DECEMBER 31, 1994 - 1998
Appendix V

Category	1994	1995	1996	1997	1998	Compound Growth
Average No. of Customers:						
Residential	344,168	351,142	478,058	486,299	493,206	9.4%
Commercial	28,029	28,146	37,515	38,599	38,610	8.3%
Industrial	611	611	850	877	811	7.3%
Private Fire Protection	1,563	1,546	2,451	2,444	2,538	12.9%
Public Fire Protection	246	253	347	340	332	7.8%
Other Sales to Public Authorities	1,829	1,887	2,145	2,266	2,136	4.0%
Sales to other Water Utilities	32	32	32	32	29	-2.4%
Total	376,478	383,617	521,398	530,857	537,662	9.3%
Water Sold (Thousand Gallons):						
Residential	20,546,852	20,995,530	26,575,722	28,200,414	27,768,974	7.8%
Commercial	9,208,570	9,261,613	11,848,535	12,471,427	12,374,586	7.7%
Industrial	5,439,577	5,283,954	7,040,820	7,012,048	7,251,236	7.5%
Private Fire Protection	-	-	-	-	-	#DIV/0!
Public Fire Protection	-	-	-	-	-	#DIV/0!
Other Sales to Public Authorities	2,715,942	2,691,802	2,899,907	2,949,535	2,981,916	2.4%
Sales to other Water Utilities	1,247,424	774,697	766,461	718,178	574,379	-17.6%
Total	39,158,365	39,007,596	49,131,445	51,351,602	50,951,091	6.8%
Operating Revenues:						
Residential	\$ 109,463,547	\$ 114,820,414	\$ 153,162,219	\$ 162,974,255	\$ 176,155,034	12.6%
Commercial	31,495,971	33,385,581	45,543,340	48,456,872	53,959,875	14.4%
Industrial	13,190,932	13,570,169	19,162,344	19,459,801	21,852,820	13.5%
Private Fire Protection	1,539,304	1,517,667	3,588,988	4,131,164	4,109,060	27.8%
Public Fire Protection	4,096,937	4,397,493	6,289,908	6,866,728	6,978,945	14.2%
Other Sales to Public Authorities	7,921,020	8,224,865	9,116,368	9,754,747	12,006,358	11.0%
Sales to other Water Utilities	2,014,698	2,043,288	2,211,743	2,267,765	2,196,295	2.2%
Miscellaneous Water Revenues	283,3479	2,478,943	3,217,222	3,551,216	3,358,800	4.3%
Total	172,555,888	180,438,420	242,292,132	257,462,548	280,617,187	12.9%
Revenue Per Customer:						
Residential	\$ 318	\$ 327	\$ 320	\$ 335	\$ 357	2.9%
Commercial	1,124	1,186	1,214	1,255	1,398	5.6%
Industrial	21,589	22,210	22,544	22,189	26,946	5.7%
Private Fire Protection	985	982	1,464	1,690	1,619	13.2%
Public Fire Protection	16,654	17,381	18,127	20,196	21,021	6.0%
Other Sales to Public Authorities	4,331	4,359	4,280	4,305	5,621	6.7%
Sales to Other Water Utilities	62,959	63,853	69,117	70,868	75,734	4.7%
Total	458	470	465	485	522	3.3%

Source: Schedule 825., Form PUC 244, Annual Report To The PA PUC

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Operating Revenues	1995	per MG	1996	per MG	1997	per MG	1998	per MG	Compound Growth
Philadelphia Suburban Water Co.	\$ 115,873,066	\$ 4.14	\$ 120,333,203	\$ 4.34	\$ 132,633,835	\$ 4.21	\$ 147,344,772	\$ 4.45	2.5%
Consumers Pennsylvania Water Co.	16,452,657	3.43	17,926,170	3.72	18,161,894	3.96	19,867,837	4.58	10.1%
United New Jersey Water Co.	119,337,713	3.82	118,447,585	3.95	121,627,867	4.02	125,507,201	4.05	2.0%
St. Louis County Water Co.	88,631,582	1.85	91,194,456	1.89	98,872,762	2.01	100,646,242	2.12	4.6%
New Jersey American Water Co.	184,931,394	4.11	199,235,152	4.88	221,696,435	4.89	231,645,448	4.96	6.5%
Panel Average	105,045,282	3.35	109,427,313	3.61	118,598,559	3.69	125,002,300	3.84	4.7%
Pennsylvania American Water Co.	180,947,927	4.64	243,312,808	4.95	258,512,855	5.03	282,059,219	5.54	6.1%

Production Expense	1995	per MG	1996	per MG	1997	per MG	1998	per MG	Compound Growth
Philadelphia Suburban Water Co.	\$ 3,961,889	\$ 0.14	\$ 13,567,840	\$ 0.49	\$ 15,315,344	\$ 0.49	\$ 15,982,666	\$ 0.48	50.6%
Consumers Pennsylvania Water Co.	1,102,953	0.23	1,146,201	0.24	1,036,809	0.23	273,470	0.06	-35.1%
United New Jersey Water Co.	13,393,867	0.43	14,545,985	0.48	16,269,430	0.54	17,050,150	0.55	8.7%
St. Louis County Water Co.	9,545,345	0.20	9,449,508	0.20	9,413,168	0.19	9,451,035	0.20	-0.1%
New Jersey American Water Co.	25,335,846	0.56	25,533,192	0.63	27,757,288	0.61	26,621,531	0.57	0.4%
Panel Average	10,667,980	0.34	12,848,545	0.42	13,958,408	0.43	13,875,770	0.43	7.9%
Pennsylvania American Water Co.	27,662,638	0.71	17,011,388	0.35	14,453,856	0.28	4,812,315	0.09	-48.9%

MG - Thousand Gallons Sold
NM - Not Meaningful

Source: National Association Of Water Companies, Financial and Operating Data

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Purification Expense	1995	per MG	1996	per MG	1997	per MG	1998	per MG	Compound Growth
Philadelphia Suburban Water Co.	\$ 5,956,350	\$ 0.21	\$ 6,360,714	\$ 0.23	\$ 6,806,157	\$ 0.22	\$ 7,299,427	\$ 0.22	1.2%
Consumers Pennsylvania Water Co.	1,227,317	0.26	1,450,040	0.30	1,340,887	0.29	1,907,069	0.44	19.7%
United New Jersey Water Co.	7,752,221	0.25	7,581,483	0.25	7,542,674	0.25	7,302,941	0.24	-1.7%
St. Louis County Water Co.	8,786,755	0.18	9,490,057	0.20	9,246,803	0.19	10,057,212	0.21	4.9%
New Jersey American Water Co.	16,468,066	0.37	17,700,383	0.43	18,667,190	0.41	20,762,916	0.44	6.7%
Panel Average	8,038,142	0.26	8,516,535	0.28	8,720,742	0.27	9,465,913	0.29	4.3%
Pennsylvania American Water Co.	11,448,546	0.29	17,647,668	0.36	18,788,159	0.37	28,099,591	0.55	23.4%

Transmission & Distribution Expense	1995	per Mile Of Main	1996	per Mile Of Main	1997	per Mile Of Main	1998	per Mile Of Main	Compound Growth
Philadelphia Suburban Water Co.	\$ 17,720,720	\$ 5.573	\$ 7,722,191	\$ 2.247	\$ 7,674,948	\$ 2.212	\$ 7,834,120	\$ 2.224	-26.4%
Consumers Pennsylvania Water Co.	1,124,960	1.953	1,240,425	2.067	1,301,655	2.159	1,488,029	2.464	8.0%
United New Jersey Water Co.	7,456,052	3.632	8,111,721	3.943	9,298,602	4.563	7,829,728	3.819	1.7%
St. Louis County Water Co.	12,106,577	3.064	14,316,522	3.598	13,818,274	3.456	13,074,011	3.251	2.0%
New Jersey American Water Co.	11,374,037	2.557	11,541,047	2.736	12,452,922	2.790	13,897,553	3.026	5.8%
Panel Average	9,956,469	3.504	8,586,381	3.004	8,909,280	3.057	8,824,688	2.983	-5.2%
Pennsylvania American Water Co.	14,644,788	2.617	18,969,883	2.564	21,211,501	2.841	20,956,664	2.772	1.9%

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Customers' Accounting and Collecting Expense	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 5,301,652	\$ 21	\$ 5,128,090	\$ 19	\$ 5,796,167	\$ 20	\$ 5,305,927	\$ 17	-5.3%
Consumers Pennsylvania Water Co.	1,040,665	26	1,207,123	30	1,038,215	25	1,074,170	26	-0.1%
United New Jersey Water Co.	4,813,094	27	5,127,166	29	5,053,881	28	5,223,065	29	2.0%
St. Louis County Water Co.	3,417,920	11	3,521,764	12	3,772,403	12	3,780,653	12	2.8%
New Jersey American Water Co.	6,640,930	21	7,534,218	24	7,624,313	23	8,654,693	26	7.3%
Panel Average	4,242,852	20	4,503,672	20	4,656,995	20	4,807,702	21	2.0%
Pennsylvania American Water Co.	12,407,700	32	16,119,298	35	17,674,295	33	16,405,695	31	-1.8%

Administration and General Expense	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 17,938,900	\$ 70	\$ 16,658,299	\$ 61	\$ 17,490,119	\$ 59	\$ 18,470,179	\$ 61	-4.4%
Consumers Pennsylvania Water Co.	3,031,223	77	3,238,719	79	3,055,964	75	3,431,647	84	3.0%
United New Jersey Water Co.	16,470,333	93	14,013,176	79	14,206,753	79	14,644,843	81	-4.6%
St. Louis County Water Co.	13,167,661	44	14,005,410	46	14,225,923	47	14,548,922	48	2.7%
New Jersey American Water Co.	25,099,399	80	22,953,762	72	19,335,258	60	20,761,040	63	-7.8%
Panel Average	15,141,503	70	14,173,873	64	13,662,803	60	14,371,326	62	-3.9%
Pennsylvania American Water Co.	29,594,825	77	35,923,664	77	34,407,817	65	36,247,597	68	-4.2%

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	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Total Operating & Maint. Expenses									
Philadelphia Suburban Water Co.	\$ 50,879,511	\$ 197	\$ 49,437,134	\$ 180	\$ 53,082,735	\$ 180	\$ 54,892,319	\$ 180	-2.9%
Consumers Pennsylvania Water Co.	7,527,118	191	8,282,508	203	7,773,530	190	8,174,385	200	1.6%
United New Jersey Water Co.	49,885,567	283	49,379,531	279	52,371,340	292	52,050,727	288	0.6%
St. Louis County Water Co.	47,024,258	157	50,783,261	168	50,476,571	167	50,911,833	167	2.0%
New Jersey American Water Co.	84,918,278	271	85,262,602	268	85,836,969	264	90,697,733	274	0.4%
Panel Average	48,046,946	221	48,629,007	219	49,908,229	218	51,345,399	221	0.0%
Pennsylvania American Water Co.	95,758,497	250	105,671,901	227	106,535,628	201	106,521,862	199	-7.3%

	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Depreciation and Amortization									
Philadelphia Suburban Water Co.	\$ 11,417,850	\$ 44	\$ 12,888,573	\$ 47	\$ 13,976,640	\$ 48	\$ 15,120,065	\$ 50	3.9%
Consumers Pennsylvania Water Co.	1,618,462	41	1,867,959	46	2,010,205	49	2,638,842	64	16.3%
United New Jersey Water Co.	9,607,407	54	9,854,043	56	10,516,445	59	11,302,033	63	4.7%
St. Louis County Water Co.	9,035,907	30	11,367,880	38	12,557,506	41	14,178,252	47	15.5%
New Jersey American Water Co.	18,321,070	58	20,446,301	64	23,011,302	71	24,935,376	75	8.8%
Panel Average	10,000,139	46	11,284,951	51	12,414,420	54	13,634,914	59	8.4%
Pennsylvania American Water Co.	19,026,458	50	27,769,013	60	31,021,210	58	37,861,151	71	12.6%

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Taxes/Other Operating Expenses	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 20,205,296	\$ 78	\$ 22,045,602	\$ 80	\$ 24,543,652	\$ 83	\$ 30,035,019	\$ 99	8.0%
Consumers Pennsylvania Water Co.	2,871,703	73	2,988,471	73	3,328,058	81	3,795,832	93	8.4%
United New Jersey Water Co.	31,291,882	177	30,875,486	174	32,771,107	183	32,095,431	178	0.1%
St. Louis County Water Co.	12,520,191	42	11,811,219	39	14,826,197	49	15,038,737	49	5.6%
New Jersey American Water Co.	41,281,199	132	43,032,945	135	48,780,983	150	52,195,678	158	6.2%
Panel Average	21,634,054	100	22,150,745	100	24,849,999	109	26,632,139	115	4.8%
Pennsylvania American Water Co.	25,682,184	67	34,606,575	74	40,072,985	75	46,148,567	86	8.8%

Total Operating Expenses	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 82,502,657	\$ 320	\$ 84,371,309	\$ 308	\$ 91,603,027	\$ 311	\$ 100,047,403	\$ 329	0.9%
Consumers Pennsylvania Water Co.	12,131,148	307	13,138,938	322	13,111,793	321	14,609,059	357	5.1%
United New Jersey Water Co.	\$ 90,784,856	515	90,109,060	509	95,658,892	533	95,448,191	528	0.9%
St. Louis County Water Co.	68,580,356	229	73,962,360	245	77,860,274	257	80,128,822	263	4.7%
New Jersey American Water Co.	144,520,547	460	148,741,848	467	157,629,254	485	167,828,787	506	3.2%
Panel Average	79,703,913	367	82,064,703	369	87,172,648	382	91,612,452	394	2.4%
Pennsylvania American Water Co.	140,467,139	366	168,047,489	361	177,629,823	335	190,531,580	356	-0.9%

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Utility Operating Income	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 33,370,409	\$ 129	\$ 35,961,894	\$ 131	\$ 41,030,808	\$ 140	\$ 47,297,369	\$ 155	6.3%
Consumers Pennsylvania Water Co.	4,321,509	109	4,787,232	117	5,050,101	124	5,258,778	128	5.5%
United New Jersey Water Co.	28,552,857	162	28,338,525	160	25,968,975	145	30,059,010	166	0.9%
St. Louis County Water Co.	20,051,226	67	17,232,096	57	21,012,488	69	20,517,420	67	0.1%
New Jersey American Water Co.	40,410,847	129	50,493,304	158	64,067,181	197	63,816,661	193	14.4%
Panel Average	25,341,370	117	27,362,610	123	31,425,911	138	33,389,848	144	7.2%
Pennsylvania American Water Co.	40,480,788	106	75,265,319	162	80,883,032	152	91,527,639	171	17.5%

Other Income	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ (350,299)	(1)	\$ (544,112)	(2)	\$ (183,291)	(1)	\$ 132,207	\$ 0	-168.4%
Consumers Pennsylvania Water Co.	173,089	4	170,755	4	391,905	10	407,101	10	31.4%
United New Jersey Water Co.	3,520,504	20	-	-	1,800,000	10	2,300,000	13	-13.9%
St. Louis County Water Co.	737,262	2	146,917	0	49,199	0	374,024	1	-20.7%
New Jersey American Water Co.	13,739	0	164,241	1	1,107,371	3	538,876	2	233.7%
Panel Average	818,859	4	(12,440)	(0)	633,037	3	750,442	3	-5.0%
Pennsylvania American Water Co.	149,552	0	59,070	0	69,619	0	49,813	0	-38.0%

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Gross Income	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 33,020,110	\$ 128	\$ 35,417,782	\$ 129	\$ 40,847,517	\$ 139	\$ 47,429,576	\$ 156	6.8%
Consumers Pennsylvania Water Co.	4,494,598	114	4,957,987	121	5,442,006	133	5,665,879	138	6.7%
United New Jersey Water Co.	32,073,361	182	28,338,525	160	27,768,975	155	32,359,010	179	-0.5%
St. Louis County Water Co.	20,788,488	70	17,379,013	58	21,061,687	69	20,891,444	69	-0.5%
New Jersey American Water Co.	40,424,586	129	50,657,545	159	65,174,552	201	64,355,537	194	14.7%
Panel Average	26,160,229	120	27,350,170	123	32,058,947	140	34,140,289	147	6.9%
Pennsylvania American Water Co.	40,630,340	106	75,324,389	162	80,952,651	152	91,577,452	171	17.4%

Interest on Long-Term Debt	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 14,404,320	\$ 56	\$ 15,072,991	\$ 55	\$ 17,316,816	\$ 59	\$ 18,426,467	\$ 61	2.7%
Consumers Pennsylvania Water Co.	2,234,509	57	2,503,360	61	2,483,940	61	2,464,620	60	2.1%
United New Jersey Water Co.	11,654,250	66	12,001,038	68	6,883,720	38	6,563,492	36	-18.1%
St. Louis County Water Co.	10,165,156	34	9,855,238	33	9,671,674	32	9,003,627	30	-4.6%
New Jersey American Water Co.	25,829,623	82	27,192,146	85	28,821,861	89	30,384,245	92	3.7%
Panel Average	12,857,572	59	13,324,955	60	13,035,603	57	13,368,490	58	-0.9%
Pennsylvania American Water Co.	26,352,518	69	36,540,504	79	45,033,436	85	46,755,971	87	8.4%

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Other Income Deductions	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 294,492	\$ 1	\$ 401,567	\$ 1	\$ 426,320	\$ 1	\$ 471,989	\$ 2	10.8%
Consumers Pennsylvania Water Co.	395,829	10	223,743	5	316,590	8	432,826	11	NM
United New Jersey Water Co.	1,474,974		591,433	3	1,852,208	10	2,024,821	11	NM
St. Louis County Water Co.	96,875	0	114,716	0	(165,842)	(1)	(15,479)	(0)	-153.9%
New Jersey American Water Co.	2,756,993	9	2,899,543	9	3,037,900	9	2,315,876	7	-7.3%
Panel Average	1,003,833	5	846,200	4	1,093,435	5	1,046,007	5	NM
Pennsylvania American Water Co.	1,815,182	5	8,483,647	18	1,760,700	3	806,658	2	NM

Total Income Deductions	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 14,698,812	\$ 57	\$ 15,474,538	\$ 56	\$ 17,743,136	\$ 60	\$ 18,898,456	\$ 62	2.9%
Consumers Pennsylvania Water Co.	2,630,338	67	2,727,103	67	2,800,536	69	2,897,446	71	2.0%
United New Jersey Water Co.	13,129,224	74	12,592,471	71	8,735,928	49	8,588,313	48	-13.9%
St. Louis County Water Co.	10,262,031	34	9,969,954	33	9,505,832	31	8,988,148	29	-4.9%
New Jersey American Water Co.	28,586,616	91	30,091,689	94	31,859,761	98	32,700,121	99	2.7%
Panel Average	13,861,404	64	14,171,155	64	14,129,039	62	14,414,497	62	-0.9%
Pennsylvania American Water Co.	28,167,700	73	45,024,151	97	46,794,136	88	47,562,629	89	6.6%

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Net Income Before Extr. Items	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	18,321,298	\$ 71	\$ 19,943,224	\$ 73	\$ 23,104,381	\$ 79	\$ 28,531,120	\$ 94	9.7%
Consumers Pennsylvania Water Co.	1,864,260	47	2,230,884	55	2,641,470	65	2,768,433	68	12.7%
United New Jersey Water Co.	18,944,137	107	15,746,054	89	19,033,047	106	23,770,697	132	7.0%
St. Louis County Water Co.	10,526,457	35	7,409,059	25	11,555,855	38	11,903,296	39	3.5%
New Jersey American Water Co.	11,837,970	38	20,563,856	65	33,314,791	103	31,655,416	96	36.3%
Panel Average	12,298,824	57	13,179,015	59	17,929,909	78	19,725,792	85	14.5%
Pennsylvania American Water Co.	12,462,640	32	30,300,238	65	34,158,515	64	44,014,823	82	36.3%

Net Income	1995	per Customer	1996	per Customer	1997	per Customer	1998	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 18,635,501	\$ 72	\$ 20,326,499	\$ 74	\$ 23,629,719	\$ 80	\$ 29,284,390	\$ 96	10.0%
Consumers Pennsylvania Water Co.	2,466,172	62	2,699,445	66	2,801,207	69	3,181,990	78	7.6%
United New Jersey Water Co.	19,118,055	108	16,421,512	93	19,735,687	110	24,937,814	138	8.4%
St. Louis County Water Co.	10,768,075	36	7,750,416	26	12,101,503	40	12,667,978	42	4.9%
New Jersey American Water Co.	28,060,938	89	27,274,845	86	34,828,905	107	35,216,739	106	5.9%
Panel Average	15,809,748	73	14,894,543	67	18,619,404	81	21,057,782	91	7.6%
Pennsylvania American Water Co.	24,794,202	65	33,282,393	72	37,529,988	71	45,946,986	86	9.9%

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Production Expense/Revenue	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	3.4%	11.3%	11.5%	10.8%	46.9%
Consumers Pennsylvania Water Co.	6.7%	6.4%	5.7%	1.4%	-41.0%
United New Jersey Water Co.	11.2%	12.3%	13.4%	13.6%	5.2%
St. Louis County Water Co.	10.8%	10.4%	9.5%	9.4%	-4.5%
New Jersey American Water Co.	13.7%	12.8%	12.5%	11.5%	-5.7%
Panel Average	10.2%	11.7%	11.8%	11.1%	3.0%
Pennsylvania American Water Co.	15.3%	7.0%	5.6%	1.7%	-51.9%

Purification Expense/Revenue	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	5.1%	5.3%	5.1%	5.0%	-1.2%
Consumers Pennsylvania Water Co.	7.5%	8.1%	7.4%	9.6%	8.8%
United New Jersey Water Co.	6.5%	6.4%	6.2%	5.8%	-4.7%
St. Louis County Water Co.	9.9%	10.4%	9.4%	10.0%	0.3%
New Jersey American Water Co.	8.9%	8.9%	8.4%	9.0%	0.2%
Panel Average	7.7%	7.8%	7.4%	7.6%	-0.3%
Pennsylvania American Water Co.	6.3%	7.3%	7.3%	10.0%	16.3%

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T & D Expense/Revenue	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	15.3%	6.4%	5.8%	5.3%	-29.7%
Consumers Pennsylvania Water Co.	6.8%	6.9%	7.2%	7.5%	3.1%
United New Jersey Water Co.	6.2%	6.8%	7.6%	6.2%	-4.6%
St. Louis County Water Co.	13.7%	15.7%	14.0%	13.0%	-1.7%
New Jersey American Water Co.	6.2%	5.8%	5.6%	6.0%	-0.8%
Panel Average	9.5%	7.8%	7.5%	7.1%	-9.4%
Pennsylvania American Water Co.	8.1%	7.8%	8.2%	7.4%	-2.8%

Customers' Acc & Coll Exp/Rev	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	4.6%	4.3%	4.4%	3.6%	-7.7%
Consumers Pennsylvania Water Co.	6.3%	6.7%	5.7%	5.4%	-5.1%
United New Jersey Water Co.	4.0%	4.3%	4.2%	4.2%	-1.9%
St. Louis County Water Co.	3.9%	3.9%	3.8%	3.8%	-0.9%
New Jersey American Water Co.	3.6%	3.8%	3.4%	3.7%	1.3%
Panel Average	4.0%	4.1%	3.9%	3.8%	-1.6%
Pennsylvania American Water Co.	6.9%	6.6%	6.8%	5.8%	-5.3%

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A & G Expense/Revenue	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	15.5%	13.8%	13.2%	12.5%	-6.8%
Consumers Pennsylvania Water Co.	18.4%	18.1%	16.8%	17.3%	-2.1%
United New Jersey Water Co.	13.8%	11.8%	11.7%	11.7%	-0.7%
St. Louis County Water Co.	14.9%	15.4%	14.4%	14.5%	-0.9%
New Jersey American Water Co.	13.6%	11.5%	8.7%	9.0%	-12.9%
Panel Average	14.4%	13.0%	11.5%	11.5%	-7.3%
Pennsylvania American Water Co.	16.4%	14.8%	13.3%	12.9%	-7.7%

Total Operating Exp/Revenue	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	43.9%	41.1%	40.0%	37.3%	-5.3%
Consumers Pennsylvania Water Co.	45.8%	46.2%	42.8%	41.1%	-3.5%
United New Jersey Water Co.	41.8%	41.7%	43.1%	41.5%	-0.3%
St. Louis County Water Co.	53.1%	55.7%	51.1%	50.6%	-1.6%
New Jersey American Water Co.	45.9%	42.8%	38.7%	39.2%	-5.2%
Panel Average	45.7%	44.4%	42.1%	41.1%	-3.5%
Pennsylvania American Water Co.	52.9%	43.4%	41.2%	37.8%	-10.6%

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Utility Oper Inc/Revenue	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	28.8%	29.9%	30.9%	32.1%	3.7%
Consumers Pennsylvania Water Co.	26.3%	26.7%	27.8%	26.5%	0.3%
United New Jersey Water Co.	23.9%	23.9%	21.4%	24.0%	0.1%
St. Louis County Water Co.	22.6%	18.9%	21.3%	20.4%	-3.4%
New Jersey American Water Co.	21.9%	25.3%	28.9%	27.5%	8.0%
Panel Average	24.1%	25.0%	26.5%	26.7%	3.5%
Pennsylvania American Water Co.	22.4%	30.9%	31.3%	32.4%	13.2%

Net Income/Revenue	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	16.1%	16.9%	17.8%	19.9%	7.3%
Consumers Pennsylvania Water Co.	15.0%	15.1%	15.4%	16.0%	2.2%
United New Jersey Water Co.	16.0%	13.9%	16.2%	19.9%	19.7%
St. Louis County Water Co.	12.1%	8.5%	12.2%	12.6%	1.2%
New Jersey American Water Co.	15.2%	13.7%	15.7%	15.2%	0.1%
Panel Average	15.1%	13.6%	15.7%	16.8%	3.8%
Pennsylvania American Water Co.	13.7%	13.7%	14.5%	16.3%	5.9%

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Total Oper Exp/Thousand Gallons	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 1.82	\$ 1.79	\$ 1.69	\$ 1.66	-3.0%
Consumers Pennsylvania Water Co.	1.57	1.72	1.70	1.88	6.2%
United New Jersey Water Co.	1.60	1.65	1.73	1.68	1.1%
St. Louis County Water Co.	0.98	1.05	1.03	1.07	2.9%
New Jersey American Water Co.	1.89	2.09	1.89	1.94	1.0%
Panel Average	1.53	1.60	1.55	1.58	1.0%
Pennsylvania American Water Co.	2.45	2.15	2.07	2.09	-5.2%

Util Oper Inc/Thousand Gallons	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 1.19	\$ 1.30	\$ 1.30	\$ 1.43	6.3%
Consumers Pennsylvania Water Co.	0.90	0.99	1.10	1.21	10.3%
United New Jersey Water Co.	0.91	0.94	0.86	0.97	1.4%
St. Louis County Water Co.	0.42	0.36	0.43	0.43	1.0%
New Jersey American Water Co.	0.90	1.24	1.41	1.37	15.0%
Panel Average	0.81	0.90	0.98	1.03	8.3%
Pennsylvania American Water Co.	1.04	1.53	1.58	1.80	20.1%

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Net Income/Thousand Gallons	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 0.67	\$ 0.73	\$ 0.75	\$ 0.88	10.0%
Consumers Pennsylvania Water Co.	0.51	0.56	0.61	0.73	12.5%
United New Jersey Water Co.	0.61	0.55	0.65	0.81	21.3%
St. Louis County Water Co.	0.23	0.16	0.25	0.27	5.8%
New Jersey American Water Co.	0.62	0.67	0.77	0.75	6.5%
Panel Average	0.50	0.49	0.58	0.65	8.7%
Pennsylvania American Water Co.	0.64	0.68	0.73	0.90	12.4%

Water Sold - Thousand Gallons	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	28,022,000	27,695,000	31,482,000	33,111,000	5.7%
Consumers Pennsylvania Water Co.	4,793,000	4,814,000	4,582,000	4,342,000	-3.2%
United New Jersey Water Co.	31,214,000	30,017,000	30,256,000	30,964,000	-0.3%
St. Louis County Water Co.	47,847,000	48,351,000	49,125,000	47,490,000	-0.2%
New Jersey American Water Co.	45,026,000	40,823,000	45,372,000	46,726,000	1.2%
Panel Average	31,380,400	30,340,000	32,163,400	32,526,600	1.2%
Pennsylvania American Water Co.	39,008,000	49,132,000	51,352,000	50,951,000	9.3%

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Miles of Main	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	3,180	3,437	3,469	3,523	3.5%
Consumers Pennsylvania Water Co.	576	600	603	604	1.6%
United New Jersey Water Co.	2,053	2,057	2,038	2,050	0.0%
St. Louis County Water Co.	3,951	3,979	3,998	4,021	0.6%
New Jersey American Water Co.	4,448	4,218	4,463	4,593	1.1%
Panel Average	2,842	2,858	2,914	2,958	1.3%
Pennsylvania American Water Co.	5,596	7,398	7,466	7,560	10.5%

Average Number of Customers	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	257,937	274,368	294,089	304,259	5.7%
Consumers Pennsylvania Water Co.	39,498	40,848	40,876	40,953	1.2%
United New Jersey Water Co.	176,425	177,200	179,512	180,645	1.0%
St. Louis County Water Co.	299,068	301,386	303,152	304,707	0.6%
New Jersey American Water Co.	313,866	318,601	324,681	331,351	1.8%
Panel Average	217,359	222,481	228,462	232,383	2.3%
Pennsylvania American Water Co.	383,617	465,148	530,857	534,880	11.7%

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Thousand Gallons/Customer	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	109	101	107	109	0.1%
Consumers Pennsylvania Water Co.	121	118	112	106	-4.4%
United New Jersey Water Co.	177	169	169	171	-1.1%
St. Louis County Water Co.	160	160	162	156	-0.9%
New Jersey American Water Co.	143	128	140	141	-0.6%
Panel Average	142	135	138	137	-1.3%
Pennsylvania American Water Co.	102	106	97	95	-2.2%

Depreciation & Amortization Exp/ Net Plant (\$000's)	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 25.94	\$ 25.76	\$ 26.58	\$ 24.97	-1.3%
Consumers Pennsylvania Water Co.	\$ 25.84	\$ 27.17	\$ 28.50	\$ 37.32	13.0%
United New Jersey Water Co.	\$ 25.36	\$ 25.94	\$ 27.00	\$ 28.35	4.5%
St. Louis County Water Co.	\$ 27.62	\$ 31.00	\$ 36.44	\$ 39.75	12.9%
New Jersey American Water Co.	\$ 31.43	\$ 24.89	\$ 27.68	\$ 27.75	-4.1%
Panel Average	\$ 27.24	\$ 26.95	\$ 29.24	\$ 31.63	5.1%
Pennsylvania American Water Co.	\$ 27.35	\$ 25.69	\$ 26.77	\$ 31.37	4.7%

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Net Utility Plant	1995	per MG	1996	per MG	1997	per MG	1998	per MG	Compound Growth
Philadelphia Suburban Water Co.	\$ 440,212,389	\$ 16	\$ 500,255,348	\$ 18	\$ 525,904,699	\$ 17	\$ 605,471,833	\$ 18	5.2%
Consumers Pennsylvania Water Co.	62,623,283	13	68,739,368	14	70,541,311	15	70,707,673	16	7.6%
United New Jersey Water Co.	378,819,093	12	379,890,879	13	389,565,260	13	398,617,740	13	2.0%
St. Louis County Water Co.	327,205,544	7	366,757,348	8	344,602,779	7	356,662,105	8	3.2%
New Jersey American Water Co.	582,931,296	13	821,356,150	20	831,298,297	18	898,410,250	19	14.1%
Panel Average	282,594,502	9	427,399,819	14	432,382,469	13	465,973,920	14	16.7%
Pennsylvania American Water Co.	695,724,687	18	1,080,852,729	22	1,158,650,999	23	1,207,026,112	24	9.9%

Investment and Fund Accounts	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 2,246,303	\$ 594,662	\$ 345,610	\$ 490,557	-39.8%
Consumers Pennsylvania Water Co.	531,578	525,103	466,835	505,147	-1.7%
United New Jersey Water Co.	20,669,308	20,669,308	20,669,308	20,669,308	0.0%
St. Louis County Water Co.	56,079	56,611	57,218	57,218	0.0%
New Jersey American Water Co.	2,222,093	4,133,292	1,812,993	770,020	-29.8%
Panel Average	5,145,072	5,195,795	4,670,393	4,498,450	-4.4%
Pennsylvania American Water Co.	857,736	755,703	742,316	653,729	-8.7%

MG = Thousand Gallons Sold
NM = Not Meaningful

Source: National Association Of Water Companies, Financial and Operating Data

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Cash and Temp. Cash Investments	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 360,312	\$ 448,901	\$ 553,318	\$ 564,706	16.2%
Consumers Pennsylvania Water Co.	294,758	259,742	140,235	792,356	39.0%
United New Jersey Water Co.	472,419	2,451,755	3,924,109	32,001,563	261.3%
St. Louis County Water Co.	4,341,514	2,608,325	14,512,085	597,477	-48.4%
New Jersey American Water Co.	52,224	29,738	79,154	165,580	46.9%
Panel Average	1,104,245	1,159,692	3,841,780	6,824,336	83.5%
Pennsylvania American Water Co.	14,506	5,314,072	193,353	29,825	27.2%

Net Accounts Receivable	1995	1996	1997	1998	per Customer	per Customer	Compound Growth
Philadelphia Suburban Water Co.	\$ 9,497,422	\$ 9,967,557	\$ 9,330,050	\$ 12,701,503	\$ 32	\$ 42	4.3%
Consumers Pennsylvania Water Co.	2,163,530	1,786,960	1,783,436	1,807,278	44	44	-6.9%
United New Jersey Water Co.	12,850,260	12,428,394	11,393,467	11,034,718	63	61	-5.7%
St. Louis County Water Co.	4,922,056	4,463,829	4,927,504	5,382,310	16	18	2.4%
New Jersey American Water Co.	16,396,153	13,720,917	15,729,820	16,830,665	48	51	-0.9%
Panel Average	9,165,884	8,473,531	8,632,855	9,551,295	38	41	-0.9%
Pennsylvania American Water Co.	15,298,153	23,233,706	22,563,719	25,446,126	42	48	6.1%

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Accrued Water Revenues	1995	per Customer	1996	per MG	1997	per MG	1998	per MG	Compound Growth
Philadelphia Suburban Water Co.	\$ 12,449,724	\$ 48	\$ 11,764,088	\$ 43	\$ 13,948,807	\$ 47	\$ 14,348,942	\$ 47	-0.8%
Consumers Pennsylvania Water Co.	1,133,006	29	1,206,907	30	1,143,833	28	1,241,400	30	1.9%
United New Jersey Water Co.	9,288,988	53	9,596,033	54	9,562,213	53	9,725,983	54	0.7%
St. Louis County Water Co.	10,586,374	35	10,907,071	36	10,832,336	36	11,663,510	38	2.6%
New Jersey American Water Co.	7,442,089	24	9,404,911	30	9,562,513	29	9,698,246	29	7.3%
Panel Average	8,180,036	38	8,575,802	39	9,009,940	39	9,335,616	40	2.2%
Pennsylvania American Water Co.	9,156,363	24	15,141,322	33	15,983,682	30	17,119,464	32	10.3%

Other Current Assets	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 2,314,631	\$ 645,385	\$ 540,501	\$ 503,729	-39.8%
Consumers Pennsylvania Water Co.	745,599	397,937	470,743	816,996	3.1%
United New Jersey Water Co.	8,869,364	12,480,983	1,492,676	1,261,051	-68.2%
St. Louis County Water Co.	2,207,400	9,581,173	1,295,603	1,305,551	-16.1%
New Jersey American Water Co.	5,483,037	7,056,773	6,586,156	6,290,237	4.7%
Panel Average	3,924,006	6,032,450	2,077,136	2,035,513	-19.7%
Pennsylvania American Water Co.	4,200,970	5,128,115	5,981,037	4,839,262	4.8%

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Total Current Assets	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 26,499,801	\$ 24,771,217	\$ 26,219,457	\$ 30,028,085	4.3%
Consumers Pennsylvania Water Co.	4,678,147	4,061,566	3,920,199	5,005,141	2.3%
United New Jersey Water Co.	32,958,458	38,269,764	27,720,842	55,758,811	20.7%
St. Louis County Water Co.	24,579,527	30,299,646	34,275,628	27,141,667	3.4%
New Jersey American Water Co.	31,847,938	32,757,092	34,622,508	35,419,431	3.6%
Panel Average	24,112,774	26,031,857	25,351,727	30,670,627	8.3%
Pennsylvania American Water Co.	30,041,705	51,290,700	47,137,655	50,240,700	18.7%

Deferred Charges & Other Assets	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 53,792,072	\$ 54,358,274	\$ 57,931,093	\$ 59,620,357	3.5%
Consumers Pennsylvania Water Co.	7,776,641	7,226,060	7,637,544	7,337,531	-1.9%
United New Jersey Water Co.	62,042,536	52,851,866	62,362,568	67,877,508	13.3%
St. Louis County Water Co.	40,498,959	39,490,176	38,086,436	35,899,654	-3.9%
New Jersey American Water Co.	35,605,002	60,450,275	58,973,786	55,934,847	16.2%
Panel Average	39,943,042	42,875,330	44,998,285	45,333,979	4.3%
Pennsylvania American Water Co.	92,293,459	119,635,606	118,817,327	123,128,456	10.1%

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Total Assets	1995	per MG	1996	per MG	1997	per MG	1998	per MG	Compound Growth
Philadelphia Suburban Water Co.	\$ 517,537,650	\$ 18	\$ 581,304,901	\$ 21	\$ 617,471,315	\$ 20	\$ 698,218,742	\$ 21	4.3%
Consumers Pennsylvania Water Co.	79,235,794	17	83,895,412	17	87,021,829	19	100,000,697	23	11.7%
United New Jersey Water Co.	497,230,927	16	507,726,130	17	509,108,415	17	553,645,800	18	3.9%
St. Louis County Water Co.	394,978,481	8	409,616,694	8	419,785,014	9	422,111,611	9	2.5%
New Jersey American Water Co.	839,405,919	19	920,152,262	23	960,481,640	21	1,008,758,420	22	5.0%
Panel Average	465,677,754	15	500,539,080	16	518,773,643	16	556,547,054	17	4.9%
Pennsylvania American Water Co.	828,245,277	16	1,290,638,170	18	1,355,818,892	16	1,423,924,503	17	2.0%

Total Common & Preferred Stock	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 24,543,000	\$ 23,043,000	\$ 21,614,500	\$ 17,400,000	-10.8%
Consumers Pennsylvania Water Co.	3,441,717	3,572,967	3,572,967	3,572,967	1.3%
United New Jersey Water Co.	45,525,730	45,465,730	45,405,730	45,345,730	-0.1%
St. Louis County Water Co.	31,900,000	31,900,000	31,900,000	31,900,000	0.0%
New Jersey American Water Co.	71,427,300	77,905,800	82,955,700	89,113,200	7.7%
Panel Average	35,367,549	36,377,499	37,089,779	37,466,379	1.9%
Pennsylvania American Water Co.	39,773,887	39,532,687	39,271,687	40,743,087	0.8%

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Total Long-Term Debt	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 175,394,837	\$ 217,517,972	\$ 232,471,160	\$ 261,826,044	14.3%
Consumers Pennsylvania Water Co.	33,195,758	32,675,580	32,414,591	32,152,993	-1.1%
United New Jersey Water Co.	175,000,000	170,000,000	170,000,000	205,060,000	9.8%
St. Louis County Water Co.	133,563,000	137,568,000	134,314,000	128,118,000	-1.4%
New Jersey American Water Co.	336,000,000	381,000,000	424,000,000	464,000,000	11.4%
Panel Average	170,630,719	187,752,310	198,639,950	218,231,407	8.5%
Pennsylvania American Water Co.	309,520,000	589,940,376	603,122,181	599,355,863	24.6%

Notes Payable	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 13,870,243	\$ 12,553,865	\$ 2,477,812	\$ 2,452,117	-43.9%
Consumers Pennsylvania Water Co.	1,365,000	3,440,000	4,310,000	13,190,000	113.0%
United New Jersey Water Co.	10,500,000	22,000,000	25,000,000	19,500,000	0.0%
St. Louis County Water Co.	-	-	-	-	0.0%
New Jersey American Water Co.	63,022,000	70,782,000	20,554,000	4,545,000	-58.4%
Panel Average	17,751,449	21,755,173	10,468,362	7,937,423	-23.5%
Pennsylvania American Water Co.	34,098,964	-	1,872,162	36,323,743	2.1%

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Accounts Payable	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 9,777,349	\$ 9,476,039	\$ 10,269,855	\$ 16,540,278	19.2%
Consumers Pennsylvania Water Co.	926,169	701,723	810,310	2,954,406	47.2%
United New Jersey Water Co.	7,146,975	7,889,041	4,193,604	11,080,225	18.5%
St. Louis County Water Co.	9,522,960	9,302,019	9,957,935	10,231,445	2.4%
New Jersey American Water Co.	19,597,275	4,858,301	11,955,582	7,087,580	-28.8%
Panel Average	9,394,146	6,445,425	7,437,457	9,578,787	0.7%
Pennsylvania American Water Co.	7,837,729	12,408,260	9,961,863	15,569,178	25.7%

Income Taxes Payable	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 2,664,428	\$ 3,353,507	\$ 4,082,317	\$ 6,664,983	35.7%
Consumers Pennsylvania Water Co.	521,464	411,618	199,093	313,100	-12.8%
United New Jersey Water Co.	21,844,589	14,083,347	22,729,604	20,289,675	20.0%
St. Louis County Water Co.	768,925	454,378	573,561	899,493	40.7%
New Jersey American Water Co.	6,108,509	222,596	216,356	261,085	8.3%
Panel Average	6,381,583	3,705,089	5,560,186	5,685,667	-3.8%
Pennsylvania American Water Co.	107,230	3,498,314	4,308,855	4,646,903	15.3%

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PENNSYLVANIA AMERICAN WATER COMPANY
BALANCE SHEET COMPARATIVE PANEL DATA
FOR THE YEARS ENDED DECEMBER 31, 1995 - 1998

Other Current Liabilities	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 12,437,830	\$ 13,583,267	\$ 15,029,175	\$ 15,591,123	7.8%
Consumers Pennsylvania Water Co.	1,187,582	1,276,432	1,455,108	1,113,228	-2.1%
United New Jersey Water Co.	2,935,031	8,798,492	8,230,755	1,332,851	-61.1%
St. Louis County Water Co.	6,239,704	6,840,732	8,031,217	7,965,600	8.5%
New Jersey American Water Co.	18,287,556	16,860,485	20,726,314	17,482,748	-1.5%
Panel Average	8,217,541	9,471,882	10,698,514	8,697,110	1.9%
Pennsylvania American Water Co.	12,312,389	18,800,448	22,622,642	21,859,623	21.1%

Total Current Liabilities	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 38,917,211	\$ 39,106,976	\$ 31,973,684	\$ 41,286,990	2.0%
Consumers Pennsylvania Water Co.	4,004,382	5,833,940	6,778,678	17,570,734	63.7%
United New Jersey Water Co.	42,426,595	52,770,880	60,153,963	52,202,751	-0.5%
St. Louis County Water Co.	16,531,589	16,597,129	18,582,713	19,096,538	4.9%
New Jersey American Water Co.	107,029,078	92,723,382	51,469,825	29,376,413	-35.0%
Panel Average	41,781,771	41,406,461	33,791,773	31,906,685	-8.6%
Pennsylvania American Water Co.	54,705,123	35,052,607	39,107,475	78,738,167	12.9%

PENNSYLVANIA AMERICAN WATER COMPANY
BALANCE SHEET COMPARATIVE PANEL DATA
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Deferred Credits & Other Liabilities	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 81,153,994	\$ 85,143,803	\$ 91,685,537	\$ 99,483,645	7.0%
Consumers Pennsylvania Water Co.	9,980,641	10,496,362	10,986,816	11,057,537	3.5%
United New Jersey Water Co.	107,074,659	111,536,462	101,665,260	111,362,463	-0.1%
St. Louis County Water Co.	63,008,310	61,783,519	60,618,987	57,917,796	-2.8%
New Jersey American Water Co.	74,449,506	94,778,528	104,238,417	98,904,626	9.9%
Panel Average	67,133,422	72,747,735	73,839,003	75,745,213	4.1%
Pennsylvania American Water Co.	137,550,809	149,717,953	166,674,241	181,396,468	9.7%

Contributions in Aid of Construction	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 23,194,727	\$ 23,859,126	\$ 24,855,827	\$ 26,096,009	4.0%
Consumers Pennsylvania Water Co.	4,055,930	4,888,860	5,246,346	5,312,043	9.4%
United New Jersey Water Co.	5,419,911	5,806,833	6,615,999	6,958,349	9.5%
St. Louis County Water Co.	36,651,914	41,919,644	47,140,166	53,802,651	13.6%
New Jersey American Water Co.	28,682,464	32,165,665	35,012,473	36,441,509	8.3%
Panel Average	19,600,989	21,728,026	23,774,162	25,722,112	9.5%
Pennsylvania American Water Co.	41,342,684	43,458,816	44,199,674	46,113,314	3.7%

PENNSYLVANIA AMERICAN WATER COMPANY
BALANCE SHEET COMPARATIVE PANEL DATA
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Additional Paid-In Capital	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 45,574,992	\$ 48,794,992	\$ 48,794,992	\$ 69,109,648	14.9%
Consumers Pennsylvania Water Co.	13,376,285	14,247,785	14,247,785	15,247,785	4.5%
United New Jersey Water Co.	81,180,948	81,180,948	81,886,746	81,886,746	0.4%
St. Louis County Water Co.	2,764,716	2,764,716	2,764,716	2,764,716	0.0%
New Jersey American Water Co.	125,682,523	144,087,023	158,920,123	177,645,623	12.2%
Panel Average	53,715,893	58,215,093	61,322,872	69,330,904	8.9%
Pennsylvania American Water Co.	94,154,938	269,268,443	286,293,103	286,299,536	44.9%

Retained Earnings	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 102,878,894	\$ 120,314,895	\$ 140,265,876	\$ 152,984,357	14.1%
Consumers Pennsylvania Water Co.	10,093,208	10,977,243	12,530,265	13,750,069	10.9%
United New Jersey Water Co.	36,979,808	37,350,070	39,581,881	46,452,445	11.5%
St. Louis County Water Co.	67,215,535	72,144,450	79,990,933	85,105,431	8.2%
New Jersey American Water Co.	65,882,283	72,571,943	82,071,663	91,089,603	11.4%
Panel Average	56,609,946	62,671,720	70,888,128	77,876,381	11.2%
Pennsylvania American Water Co.	107,268,810	117,812,363	128,629,075	140,172,535	9.3%

PENNSYLVANIA AMERICAN WATER COMPANY
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Total Common Equity	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 165,853,976	\$ 186,509,887	\$ 206,460,868	\$ 239,494,005	13.0%
Consumers Pennsylvania Water Co.	25,865,068	27,751,853	29,304,875	31,524,679	6.8%
United New Jersey Water Co.	138,966,486	139,336,748	142,274,357	149,144,921	3.5%
St. Louis County Water Co.	101,880,251	106,809,166	114,565,669	119,770,147	5.5%
New Jersey American Water Co.	260,502,106	292,191,766	321,691,486	355,709,426	10.9%
Panel Average	138,613,577	150,519,884	162,859,451	179,128,636	8.9%
Pennsylvania American Water Co.	22,930,635	408,587,693	436,419,065	447,978,958	169.3%

Total Liabilities and Net Worth	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 517,537,650	\$ 581,304,901	\$ 617,471,315	\$ 698,218,742	10.5%
Consumers Pennsylvania Water Co.	79,235,794	83,895,415	87,020,829	100,000,697	8.1%
United New Jersey Water Co.	497,230,927	507,726,130	509,108,415	553,645,800	4.4%
St. Louis County Water Co.	394,978,481	409,616,694	419,785,014	422,111,611	2.2%
New Jersey American Water Co.	839,405,919	920,152,262	960,481,640	1,008,758,420	6.3%
Panel Average	465,677,754	500,539,080	518,773,443	556,547,054	6.1%
Pennsylvania American Water Co.	828,245,277	1,290,638,170	1,355,818,892	1,423,924,503	19.8%

PENNSYLVANIA AMERICAN WATER COMPANY
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Total Assets/Customer	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 2,006	\$ 2,119	\$ 2,100	\$ 2,295	4.6%
Consumers Pennsylvania Water Co.	2,006	2,054	2,129	2,442	6.8%
United New Jersey Water Co.	2,818	2,865	2,836	3,065	3.4%
St. Louis County Water Co.	1,321	1,359	1,385	1,385	1.6%
New Jersey American Water Co.	2,674	2,888	2,958	3,044	4.4%
Panel Average	2,142	2,250	2,271	2,395	3.8%
Pennsylvania American Water Co.	2,159	2,775	2,554	2,662	7.2%

Total Assets/Mile of Main	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 162,748	\$ 169,131	\$ 177,997	\$ 198,189	6.8%
Consumers Pennsylvania Water Co.	137,562	139,826	144,315	165,564	6.4%
United New Jersey Water Co.	242,197	246,828	249,808	270,071	4.6%
St. Louis County Water Co.	99,969	102,945	104,999	104,977	1.6%
New Jersey American Water Co.	188,715	218,149	215,210	219,630	5.2%
Panel Average	163,879	175,124	178,016	188,137	4.7%
Pennsylvania American Water Co.	148,007	174,458	181,599	188,350	8.4%

PENNSYLVANIA AMERICAN WATER COMPANY
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COMPARATIVE OPERATING DATA AND RATIOS
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Unaccounted for Water	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	17.1%	19.7%	16.9%	16.6%	-1.0%
Consumers Pennsylvania Water Co.	28.7%	31.7%	27.9%	28.4%	-0.3%
United New Jersey Water Co.	19.3%	19.6%	22.2%	18.6%	-2.6%
St. Louis County Water Co.	16.1%	14.4%	15.1%	15.6%	-1.0%
New Jersey American Water Co.	4.6%	11.0%	9.3%	11.0%	33.7%
Panel Average	17.2%	19.3%	18.3%	18.0%	1.7%
Pennsylvania American Water Co.	25.6%	32.8%	29.3%	26.8%	1.5%

Customers/Employees	1995	1996	1997	1998	Compound Growth
Suburban Philadelphia Water Co.	490	517	563	571	5.2%
Consumers Pennsylvania Water Co.	420	435	452	506	6.4%
United New Jersey Water Co.	411	466	483	480	1.5%
St. Louis County Water Co.	521	517	519	496	-1.6%
New Jersey American Water Co.	527	553	559	576	3.0%
Panel Average	474	498	515	526	3.5%
Pennsylvania American Water Co.	468	418	487	493	1.7%

Source: National Association of Water Companies, Financial and Operating Data

PENNSYLVANIA AMERICAN WATER COMPANY
COMPARATIVE OPERATING DATA AND RATIOS
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Gross Plant/Employees	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 1,008,511	\$ 1,144,520	\$ 1,235,664	\$ 1,386,051	11.2%
Consumers Pennsylvania Water Co.	803,626	883,790	1,028,909	1,084,697	10.5%
United New Jersey Water Co.	1,089,105	1,255,120	1,335,973	1,374,524	4.6%
St. Louis County Water Co.	722,589	745,691	778,154	779,826	2.6%
New Jersey American Water Co.	1,176,325	1,661,022	1,700,791	1,876,090	16.8%
Panel Average	960,031	1,138,029	1,215,898	1,300,238	10.6%
Pennsylvania American Water Co.	986,057	1,113,720	1,228,720	1,305,052	9.8%

Gross Revenues/Employees	1995	1996	1997	1998	Compound Growth
Suburban Philadelphia Water Co.	\$ 220,291	\$ 226,616	\$ 254,088	\$ 276,444	7.9%
Consumers Pennsylvania Water Co.	175,028	190,704	216,213	245,282	11.9%
United New Jersey Water Co.	278,176	311,704	326,957	333,796	3.5%
St. Louis County Water Co.	154,410	156,423	169,303	163,919	2.0%
New Jersey American Water Co.	310,288	345,894	381,577	402,862	9.1%
Panel Average	227,639	246,268	269,628	284,461	7.7%
Pennsylvania American Water Co.	220,668	218,610	237,386	259,962	5.6%

PENNSYLVANIA AMERICAN WATER COMPANY
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Gross Plant/Customers	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 2,057	\$ 2,215	\$ 2,193	\$ 2,428	5.7%
Consumers Pennsylvania Water Co.	1,913	2,034	2,122	2,145	3.9%
United New Jersey Water Co.	2,648	2,692	2,769	2,861	3.1%
St. Louis County Water Co.	1,387	1,442	1,499	1,571	4.2%
New Jersey American Water Co.	2,234	3,003	3,043	3,256	13.4%
Panel Average	2,048	2,277	2,325	2,452	6.2%
Pennsylvania American Water Co.	2,108	2,665	2,521	2,647	7.9%

Gross Revenues/Customers	1995	1996	1997	1998	Compound Growth
Suburban Philadelphia Water Co.	\$ 449.23	\$ 438.58	\$ 451.00	\$ 484.27	2.5%
Consumers Pennsylvania Water Co.	416.54	438.85	444.31	485.13	5.2%
United New Jersey Water Co.	676.42	668.44	677.55	694.77	2.0%
St. Louis County Water Co.	296.36	302.58	326.15	330.30	3.7%
New Jersey American Water Co.	589.20	625.34	682.81	699.09	5.9%
Panel Average	485.55	494.76	516.36	538.71	3.5%
Pennsylvania American Water Co.	471.69	523.09	486.97	527.33	3.8%

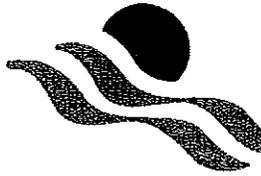
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O & M Expenses/Customers	1995	1996	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 197.26	\$ 180.19	\$ 180.50	\$ 180.41	-2.9%
Consumers Pennsylvania Water Co.	190.57	202.76	190.17	199.60	1.6%
United New Jersey Water Co.	282.70	278.67	291.74	288.14	1.7%
St. Louis County Water Co.	157.24	168.50	166.51	167.08	2.0%
New Jersey American Water Co.	270.56	267.62	264.43	273.72	0.4%
Panel Average	219.67	219.55	218.67	221.79	0.3%
Pennsylvania American Water Co.	219.78	227.18	200.69	199.15	-3.2%

Gross Plant/Revenues	1995	1996	1997	1998	Compound Growth
Suburban Philadelphia Water Co.	\$ 4.58	\$ 5.05	\$ 4.86	\$ 5.01	3.0%
Consumers Pennsylvania Water Co.	4.59	4.63	4.78	4.42	-1.3%
United New Jersey Water Co.	3.92	4.03	4.09	4.12	1.1%
St. Louis County Water Co.	4.68	4.77	4.60	4.76	0.6%
New Jersey American Water Co.	3.79	4.80	4.46	4.66	7.1%
Panel Average	4.31	4.66	4.56	4.59	2.1%
Pennsylvania American Water Co.	4.47	5.09	5.18	5.02	3.9%

PENNSYLVANIA AMERICAN WATER COMPANY
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COMPARATIVE OPERATING DATA AND RATIOS
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FOR THE YEARS ENDED DECEMBER 31, 1995 - 1998

Net Plant/Revenues	1995	1995	1995	1997	1998	Compound Growth
Philadelphia Suburban Water Co.	\$ 3.80	\$ 4.16	\$ 3.97	\$ 4.11		2.6%
Consumers Pennsylvania Water Co.	3.80	3.83	3.88	3.56		-2.2%
United New Jersey Water Co.	3.17	3.21	3.20	3.18		-0.5%
St. Louis County Water Co.	3.69	3.69	3.49	3.54		-1.4%
New Jersey American Water Co.	3.15	4.12	3.75	3.88		7.2%
Panel Average	3.52	3.80	3.66	3.65		1.2%
Pennsylvania American Water Co.	3.84	4.44	4.48	4.28		3.7%



Pennsylvania~American
Water Company

Our commitment is crystal clear[®]

**PUC Focused
Management/
Operations Audit
(Implementation Plan)**

October 2000

Summary

Rec. No.	Recommendation	Acceptance	Status	Project Implementation Date	Personnel Responsible
	Fleet Operations				
1	Customize the vehicle exception parameters based on the Company's fleet profile. Management should periodically review and update the parameters on a timely basis to properly identify vehicles operating inefficiently and to enforce fleet operating standards.	Accepted	In Progress	April 2001	President, V.P. & Treasurer
2	Conduct and document fleet cost activity and operating practice benchmarking studies on a periodic basis.	Accepted	In Progress	October 2001	President, V.P. & Treasurer
3	Update the vehicle management operating policies and procedures manual and periodically review and revise as necessary.	Accepted	In Progress	October 2001	President, V.P. & Treasurer
	Energy Procurement				
1	Conduct a current preliminary energy survey for its 29 demand metered accounts in order to identify potential energy audit candidate sites. Prioritize, schedule, and conduct energy audits for these sites in a timely manner based on the cost-effective energy conservation measures.	Accepted	In Progress	October 2001	President, Vice Presidents of Operation Vice President of Engineering
	Unaccounted-for Water				
1	Develop an automated company-wide leak survey and repair database to be utilized with the recommended main replacement prioritization procedure.	Accepted	In Progress	October 2001	President, Vice Presidents Of Operation
2	Develop a formalized main replacement procedure based on weighted factors in order to systematically prioritize main replacement candidates on a state-wide basis.	Accepted	In Progress	October 2001	President, Vice Presidents Of Operation
3	Conduct a cost/benefit study on a periodic basis to determine the appropriate mix of contractors and in-house personnel to perform annual leak survey work.	Accepted	In Progress	April 2002	President, Vice Presidents Of Operation
	Drought Contingency Planning				
1	Develop internal management action plans to support the staged supply extension and demand reduction measures for those districts evaluated for drought vulnerability on a risk assessment basis.	Accepted	In Progress	October 2001	President, Vice Presidents Of Operation

Rec. No.	Recommendation	Acceptance	Status	Project Implementation Date	Personnel Responsible
	Customer Call Center Consolidation				
1	Continue efforts to consolidate the existing customer service call centers. Management should complete and document detailed plans and cost benefit analyses in support of consolidation strategy chosen. Also, PAWC should formally track actual implementation costs and realized benefits from the consolidation, and retain these results for regulatory review.	Accepted	In Progress	April 2001	President, V.P. & Treasurer
	Meter Reading				
1	Perform and document a cost/benefit analysis for full and/or partial deployment of an automatic fixed-network meter reading (AMR) system; include an analysis of operating and capital expenses which reflect productivity improvements and staffing reductions that could be realized.	Accepted	In Progress	October 2001	President, V.P. & Treasurer
	Cost Allocations				
1	Develop a more detailed internal audit report that clearly defines the audit scope and results, as well as the corrective actions recommended, for the periodic cost allocation and direct billing charge review. A copy of the audit report should be routinely provided to PAWC and other AWWC operating companies.	Accepted	In Progress	October 2001 (next audit)	Vice President & Comptroller, AWWSC; and Director of Internal Audits, AWWSC
	PG&W Acquisition				
	None	N/A	N/A	N/A	N/A
	Diversity				
1	Set goals with timetables for increasing the Company's female and minority employment percentages, especially for the Pittsburgh, Wilkes-Barre/Scranton, and Hershey-Corporate geographic locations.	Accepted	In Progress	April 2001	President, V.P. of Human Resources
2	Develop annual MWDBE procurement goals with accountability established at the Regional Operating Manager Level.	Accepted	In Progress	April 2001	President, V.P. & Comptroller
3	Update the Company's MWDBE vendor list and integrate it into the purchasing process, and establish a process to ensure that the MWDBE	Accepted	In Progress	October 2001	President, V.P.

Detail

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

FLEET OPERATIONS

Recommendation No. 1

Customize the vehicle exception parameters based on the Company's fleet profile. Management should periodically review and update the parameters on a timely basis to properly identify vehicles operating inefficiently and to enforce fleet operating standards.

The new parameters will be established by type of vehicle and customized to meet PAWC's requirements by April 30, 2001.

Company Acceptance

The Company accepts this recommendation.

Discussion

The vehicle exception reports have been moved to the financial area of the company to determine what parameters are to be established for the different types of vehicles to monitor and distribute the exception reports. In conjunction with our fleet management company, the parameters used to determine exception reporting will be reviewed.

Implementation Date

The recommendation will be implemented by April 2001.

Personnel Responsible

President
Vice President & Treasurer

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

FLEET OPERATIONS

Recommendation No. 2

Conduct and document fleet cost activity and operating practice benchmarking studies on a periodic basis.

Company Acceptance

The Company accepts this recommendation.

Discussion

In conjunction with its fleet manager, PAWC will develop benchmarking studies and annually conduct fleet cost activities.

Implementation Date

The recommendation will be implemented by October 2001.

Personnel Responsible

President
Vice President & Treasurer

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

FLEET OPERATIONS

Recommendation No. 3

Update the vehicle management operating policies and procedures manual and periodically review and revise as necessary.

Company Acceptance

The Company accepts this recommendation.

Discussion

PAWC will review and update the vehicle management policy and procedures which will contain vehicle use criteria, safety guidelines, operating practices and vehicle determination needs.

Implementation Date

The recommendation will be implemented by October 2001.

Personnel Responsible

President
Vice President & Treasurer

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

ENERGY PROCUREMENT

Recommendation No. 1

Conduct a current preliminary energy survey for its 29 demand metered accounts in order to identify potential energy audit candidate sites. Prioritize, schedule, and conduct energy audits for these sites in a timely manner based on the cost-effective energy conservation measures.

Company Acceptance

The Company accepts this recommendation.

Discussion

Pennsylvania-American Water Company intends to implement this recommendation by conducting the preliminary energy survey for its 29 demand metered locations. The objective of the survey will be to identify, prioritize and schedule energy audits for selected locations in a timely manner.

The ultimate goal of the selected energy audits will be to identify energy consumption patterns, identify and quantify energy conservation measures (ECMs) and to evaluate strategies to reduce energy usage.

The preliminary survey will be conducted by either internal expertise or a combination of internal and external (consultant) expertise.

Implementation Date

The Company will implement this recommendation by October 2001.

Personnel Responsible

President
Vice Presidents of Operation
Vice President of Engineering

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

UNACCOUNTED-FOR WATER

Recommendation No. 1

Develop an automated company-wide leak survey and repair database to be utilized with the recommended main replacement prioritization procedure.

Company Acceptance

The Company accepts this recommendation.

Discussion

The Company's operating personnel maintain some form, i.e. paper (file folders), leak cards, computer spreadsheets, etc., of main break records. The Company will enhance a PC data-base program, already in use in one of the Company's operations, to develop a standardized data-base for use state-wide. Data currently available in PAWC's various operations will be reviewed to determine that the most meaningful and value-added data is included in this program.

Once the standardized program is developed, the data-base must be constructed going forward before it becomes a useful tool in planning capital main replacement projects. The data-base will be capable of being queried to provide information in a number of ways.

Implementation Date

The Company will develop the data-base program for state-wide use by October 2001.

Personnel Responsible

President
Vice Presidents of Operation

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

UNACCOUNTED-FOR WATER

Recommendation No. 2

Develop an automated main replacement procedure based on weighted factors in order to systematically prioritize main replacement candidates on a state-wide basis.

Company Acceptance

The Company accepts this recommendation.

Discussion

The Company agrees to develop a uniform formula-based procedure to objectively prioritize main replacement candidates across the state. The formula will be developed based on input from operating personnel so as to include all necessary factors in identifying potential main replacement projects.

The formula-based approach will be used as soon as a meaningful database (unaccounted-for recommendation R-1) is constructed.

Implementation Date

The Company will develop the formula by October 2001.

Personnel Responsible

President
Vice Presidents of Operation

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

UNACCOUNTED-FOR WATER

Recommendation No. 3

Conduct a cost/benefit study on a periodic basis to determine the appropriate mix of contractors and in-house personnel to perform annual leak survey work.

Company Acceptance

The Company accepts this recommendation.

Discussion

The Company will periodically conduct cost/benefit analyses to determine the benefits of external leak detection resources to supplement the Company's existing resources.

The cost of additional external resources and potential additional capital expenditures or maintenance expense will be analyzed against expected cost savings resulting from reduced unaccounted-for water, i.e., chemical, fuel and power and waste disposal costs.

Implementation Date

The Company will implement the recommendation by April 2002.

Personnel Responsible

President
Vice Presidents of Operation

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

DROUGHT CONTINGENCY PLANNING

Recommendation No. 1

Develop internal management action plans to support the staged supply extension and demand reduction measures for those districts evaluated for drought vulnerability on a risk assessment basis.

Company Acceptance

The Company accepts this recommendation.

Discussion

The audit recommends development of internal management planning documents to support the Company's staged supply extension and demand reduction measures outlined in its Drought Contingency Plans.

The Company intends to implement this recommendation by including additional documentation as needed. PAWC will review each of its Drought Contingency plans and incorporate additional strategies to deal with high risk operations normally first affected by drought conditions. Management plans will be reviewed and additional language drafted as appropriate for each system. Support language will be added, as needed, to each plan so that objectives are sound and well-defined and action plans clearly documented.

Implementation Date

The Company will implement this recommendation by October 2001.

Personnel Responsible

President
Vice Presidents of Operation

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

CUSTOMER CALL CENTER CONSOLIDATION

Recommendation No. 1

Continue efforts to consolidate the existing customer service call centers. Management should complete and document detailed plans and cost benefit analyses in support of the consolidation strategy chosen. Also, PAWC should formally track actual implementation costs and realized benefits from the consolidation, and retain these results for regulatory review.

Company Acceptance

The Company accepts this recommendation.

Discussion

A preliminary customer call center consolidation study, encompassing the entire American Water System has been completed. The study will be updated with more specific information once the site selection process is completed. It will include a cost/benefit analysis evaluating potential service improvements and cost savings as compared to the current decentralized system.

The consolidation study, as well as actual implementation costs and realized benefits, will be documented and made available for Commission review.

Implementation Date

The detailed implementation plan is currently in development and expected to be completed by year-end. It will begin merging the various companies' call centers in the first half of 2001. A final rollout schedule, including the order of merger, is not known at this time. If a decision not to consolidate System-wide is made, PAWC will resume its study to consolidate its three existing call centers into one for the state.

Personnel Responsible

President
Vice President & Treasurer

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

METER READING

Recommendation No. 1

Perform and document a cost/benefit analysis for full and/or partial deployment of an automatic fixed-network meter reading (AMR) system; include an analysis of operating and capital expenses which reflect productivity improvements and staffing reductions that could be realized.

Company Acceptance

The Company accepts this recommendation.

Discussion

The Company regards this recommendation as in progress. In conjunction with an American Water System study, PAWC is studying the cost/benefits of a Ramar radio frequency system as well as Itron and Schlumberger handheld systems. PAWC received and analyzed proposals from Itron and Schlumberger to install an AMR system in the Pittsburgh operation. The analyses indicated that, although technologies continue to improve, the Company was not able to cost-justify an AMR system.

PAWC will continue working with the various vendors to update/redo studies when prudent and incorporate new technologies into the studies when available. At the same time, the American Water System will continue to evaluate fixed network AMR systems.

Implementation Date

The Company will complete this recommendation by October 2001.

Personnel Responsible

President
Vice President & Treasurer

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

COST ALLOCATIONS

Recommendation No. 1

Develop a more detailed internal audit report that clearly defines the audit scope and results, as well as the corrective actions recommended, for the periodic cost allocation and direct billing charge review. A copy of the audit report should be routinely provided to PAWC and other AWWC operating companies.

Company Acceptance

The Company accepts this recommendation.

Discussion

The Internal Audit Department of American Water Works Service Company, Inc. will comply with the recommendation by including its audit program as part of the audit report. The audit program will be paraphrased in the report to eliminate specific references to report identification numbers, etc. that are usually included in the audit program to make it easier for the staff auditors to follow.

The audit report will be distributed to all American System comptrollers. In the past, the report was only issued upon request. The next Service Company billing audit, scheduled for 2001, will incorporate the recommended changes.

Implementation Date

The Company will implement this recommendation by October 2001.

Personnel Responsible

Vice Presidents & Comptroller, AWWSC
Director of Internal Audits, AWWSC

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

DIVERSITY

Recommendation No. 1

Set goals with timetables for increasing the Company's female and minority employment percentages, especially for the Pittsburgh, Wilkes-Barre/Scranton, and Hershey Corporate geographic locations.

Company Acceptance

The Company accepts this recommendation.

Discussion

PAWC agrees that hiring goals with timetables be established for every operating region in the state, with special oversight and emphasis in Pittsburgh, Wilkes-Barre/Scranton, and Hershey Corporate. An updated statistical review will be performed immediately by the Human Resource Department to identify underutilized job groups in all areas of the state.

As openings occur, Human Resource Managers, in conjunction with the appropriate department head, will take every step necessary in the hiring process to achieve appropriate representation of females and minorities in the associate population. The EEO Officer (President) and EEO Coordinator (Vice President Human Resources) will review the results quarterly and discuss the progress at scheduled managers' meetings.

Implementation Date

The Company will implement this recommendation by April 2001.

Personnel Responsible

President
Vice President of Human Resources

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

DIVERSITY

Recommendation No. 2

Develop annual MWDBE procurement goals with accountability established at the regional operating manager level.

Company Acceptance

The Company accepts this recommendation.

Discussion

PAWC agrees that procurement goals with accountability be established. Goals will be established at the Company level with each manager held accountable for his or her contribution to reaching these goals.

Each manager will be required to submit quarterly reports to the EEO coordinator detailing procurement activity, including dollars spent, new vendors and other activity. The EEO coordinator will review the various reports and submit a consolidated report to the EEO officer (president). During scheduled managers' meetings, the EEO officer and coordinator will discuss the progress of the Company's MWBDE procurement program.

Implementation Date

The Company will implement this recommendation by April 2001.

Personnel Responsible

President
Vice President & Comptroller

Pennsylvania-American Water Company
IMPLEMENTATION PLAN

DIVERSITY

Recommendation No. 3

Update the Company's MWDBE vendor list and integrate it into the purchasing process, and establish a process to ensure that the MWDBE vendor list remains current in the future.

Company Acceptance

The Company accepts this recommendation.

Discussion

PAWC will update its vendor list by identifying minority vendors applicable to its operations. This will be accomplished using four sources; the internet, UDAC, affiliated Companies' vendor lists and contacts made by local operations personnel. The updated list will include existing and potential new vendors. New vendors added will be provided to the EEO coordinator and included in the quarterly reports to the EEO officer.

The vendor list will be maintained on a company wide computerized network. This will ensure that all individuals involved in the purchasing process have access to the current list of minority vendors. In order to ensure that the list contains current data, PAWC will contact each vendor annually to ascertain their current status.

The Company's financial software vendor does not provide or support modifications to the purchasing software. PAWC will explore other options, including custom modification to the software, to further integrate the vendor list into the purchasing process.

Implementation Date

The Company will implement this recommendation by October 2001.

Personnel Responsible

President
Vice President & Controller