In the spring of 1996, the Director of Compensation and Benefits for the Service Company, in direct testimony at a routine rate proceedings hearing, described the process by which AWWC controls group insurance costs. A copy of the transcript was made available to us by the Service Company. A summary of the Director's testimony follows:

- The Service Company solicits competitive bids for group insurance regularly, in intervals of four to five years generally. [The last such solicitation involving the Company was in 1994.] An outside consulting firm that specializes in bid solicitation assists in selecting prospective bidders and invites them to consider competing. All companies are given the same bid specifications and detailed information about the AWS's claims experience. Typically, several of the prospective bidders decline to submit bids when they see the coverage specifications. This bidding process ensures that the Service Company obtains the most competitive pricing for the coverage it provides for its employees.
- One of the specifications is for a "split-funded policy," in which the policyholder pays the monthly premium. These funds are paid into a tax-exempt employee insurance trust fund. The insurer administers the claims process and determines eligibility for payment. When eligible claims are less than predicted by the insurer, the savings ultimately come back to the Service Company, which passes the savings on to the operating companies, including New Jersey American Water Company.
- The insurer performs a thorough review of all claims to assure eligibility, payment of the correct amount, coordination of appropriate co-payments and deductibles, verification of reasonable fees by doctors and hospitals, and avoidance of duplicate payments. In a recent year, less than 55% of submitted claims were determined eligible for payment, resulting in substantial cost savings to AWWC and all its subsidiaries.
- It is clearly more cost effective to buy insurance in large groups than in small. The larger the group, the more the risk can be spread, the more stable and predictable the level of claims, the lower the cost of paying the claims, and the less likely the claims are to go beyond the predicted level. The economies of scale resulting from pooling risk over approximately 4,000 employees in the AWS keep the costs as low as possible for all employees, the companies, and the ratepayers.
- Another way to control health insurance costs is to offer employees three plans from which to choose. Each plan offers insurance coverage, but each one meets different individual and family needs. The employee is required to pay part of the premium in each case, but they can choose a plan that does not provide coverages they do not need or desire, resulting in savings for them and for the company.

This procedure for purchasing the most economically priced benefits programs and for containing the costs of such programs once purchased is standard for the industry. We are satisfied that the Company, as a participant in this program, is benefiting from a concerted effort by the Service Company to obtain the best value possible for its benefits dollars, and is maintaining a competitive stance in the

industry while providing its employees with benefits coverages that they find quite satisfactory.

The administration of the benefits program by the Company has been praised uniformly by all employees interviewed. A few commented about the inconvenience resulting from the consolidation of the Human Resources function, but no more than should be reasonably expected from so substantial a change.

The recent consolidation of the human resources function to Haddon Heights does complicate the assessment of employees' satisfaction with the Department, however. To some degree, any dissatisfaction pertaining to program administration, especially benefits, could be attributed to the inconvenience of dealing long distance with a human resources professional.

The Company's benefits programs appear to us to be in compliance with all pertinent laws in every respect, and the requirements of ERISA and COBRA in particular are being met.

Findings and Conclusions
(Compensation and Benefits)

C5B-1 **The policy document entitled "Salary Administration" (Rev. 5/24/93) calls for "periodic updates" of the salary structure. In this company there has been a seven-year gap between the last previous comprehensive salary survey and the Towers-Perrin survey recently conducted.**

Standard practice in the human resources profession calls for a comprehensive salary survey at least every three years, preferably every two years.

C5B-2 **The salary structure and salary grade assignments developed by the Service Company may no longer be aligned with the going market rates.**

The data generated by the Towers-Perrin report of February 5, 1997, suggest that a restructuring of salary grades and rates should be accomplished to keep the Company competitive with the market.

C5B-3 The voluntary turnover rate for the Company has been low—2.34% in 1995 and 2.23% in 1996.

According to the Coopers & Lybrand study entitled "1996 Water Utility Compensation and Benefits Study," dated July 1, 1996, the turnover rate for the water industry is 4.4%. Since the Company turnover rate is considerably lower than that, we conclude that salary and wage offerings are adequate to recruit and retain the caliber of people desired by the Company.

C5B-4 Turnover statistics are not routinely tracked, although hirings and terminations are reported.

Turnover statistics were not made available when first requested, but were apparently calculated for 1995 and 1996 for the purpose of this audit. Critical information from exit interviews, such as reason for leaving, is not analyzed statistically.

C5B-5 Our examination of the benefits package leads us to conclude that it is fully adequate, and is certainly sufficient to attract and retain people.

We heard no complaints about salary levels, benefits packages, or administration of these programs. Even the recent consolidation of the human resources function produced no major pattern of complaints about benefits administration.

C5B-6 The benefits package is a very complete package and is effectively designed to attract and retain employees.

The design of the benefits offerings are completed by the Service Company, based on studies accomplished there. The centralization of the department has not had a negative affect on administration, and handling claims by telephone or electronically is working well. Changes in benefits are handled by mail, telephone or electronic mail generally. The more significant changes are introduced by a briefing on site by a human resources staff person qualified to answer questions and complete any required paperwork.

C5B-7 Employees are satisfied with the way the updating of benefits is handled.

Each year, the employees are given an opportunity to update their benefits package and make any changes to the coverages they have selected. This is usually done on site by a human resources professional.

C5B-8 Employees are not well informed about the details of some benefits, such as EAP.

They know of its existence, but there are clear indications that not all the information that has been provided them has sunk in. They do know whom to contact for information if they need it. It is obvious, however, that written memos and even onsite presentations are inadequate to make a new policy or procedure operationally effective.

Recommendations
(Compensation and Benefits)

R5B-1 Encourage the Service Company to conduct triennial comprehensive salary surveys for all nonbargaining employees below executive level and to restructure salary grades and rates in accordance with Towers-Perrin recommendations. (Refer to Conclusions C5B-1 and C5B-2).

Seven years between salary studies cannot be justified by the Company simply because the Service Company had other priorities. A survey and salary range adjustment should be conducted every three years at a minimum—every two years is preferable—in order to keep the salary structure up-to-date and competitive.

While it is not the responsibility of New Jersey-American to perform salary studies and develop salary administration policies, it is clear that the Service Company will seek input as they proceed with implementation of the Towers-Perrin recommendations. Since the Company will be affected by that implementation, it is in its interest to be an active participant in the process. Providing data regarding salary administration and equity issues specific to NJAWC is the best way to do this.

R5B-2 Gather and maintain turnover statistics annually and enter them into the HRIS system or its replacement. Continue to conduct a standardized exit interview each time an employee leaves the company, voluntarily or otherwise, but also analyze the statistical results and search for indications of problems. (Refer to Conclusion C5B-4).

Turnover statistics, especially voluntary turnovers, are a valuable indicator of potential employee problems. Turnover is costly and is dangerous because the hard dollar costs are hidden. While the Company is to be congratulated for having such low turnover rates, it cannot afford to be complacent.

R5B-3 Provide employees, especially supervisors and managers, with periodic refreshers on benefits issues, to ensure that their knowledge of benefits such as EAP is current and complete (Refer to Conclusion C5B-8).

Managers and supervisors have many things on their minds, and a memo or onsite presentation of a new benefit or change in an existing benefit will not stay current in their minds unless a refresher presentation is provided. A "Rolodex" of human resources issues and answers, which puts everything handily in one place, perhaps even on-line, will be helpful to managers and will reduce the workload in the Human Resources Department.

5C Development, Training and Evaluation

The quality of its human resources is of paramount importance to the success of any organization. The utility industry is no exception to this generalization. It is the people who control, protect, develop, and utilize all other resources of the organization. Management bears the lion's share of responsibility for success in this area. The single greatest contribution a manager or supervisor can make to the organization and its long-term success is the development of the human resources for whom he or she is responsible.

The Service Company has traditionally offered the training that is appropriate for managers and supervisors. Among others, there is a Management Institute that offers advanced management skills over a 3-year cycle. Courses offered are not listed in a formal curriculum, and are offered to senior managers as outside training courses and/or on-site courses offered by vendors.

Technical training in general is left up to the operating companies, and is essentially left up to functional departments to design and implement. On-the-job training combined with a "buddy system" seems to be the method of choice for developing the technical skills of a new employee.

For the last year or more, there has been almost no training offered by the Service Company. New Jersey-American has not been in a position to take up the slack, being shorthanded to begin with, and not having a training and development specialist on staff. Furthermore, there has been no training needs analysis at the Company level in recent memory, and it has been over four years since one was performed by the Service Company. The Service Company has plans for offering supervisory and managerial skills training courses in 1997. They are courses that have been requested by the its president, but are not the result of a training needs analysis involving input from the potential users of the training offerings. Our analysis shows that the service most often requested from the Human Resources Department was help with training—both supervisor/ manager training and

development, and assistance with technical training, such as instructional design and train-the-trainer offerings.

The Company has attempted to respond to the Service Company's suggestion to take up some of the training slack locally, but lack of a dedicated training and development professional has made this difficult. They have engaged the services of an outside vendor to offer two courses for performance appraisers and reviewers entitled, "It's Your Job—Manage It" and "Coaching for High Performance." These courses were scheduled for delivery in February and March, 1997.

The performance evaluation process is working well procedurally. In other words, the forms are well designed and the procedures are being adhered to as well as in most organizations. There is a lost opportunity, however, by not having a formal performance management process in place, with training and accountability for managers and supervisors who execute the program.

While a formal succession planning process is lacking, it would appear that some succession planning has occurred on an informal basis. Each of the Operating Center Managers and Operations Managers interviewed, for example, has had a good succession of increasingly responsible positions within the AWS to eventually reach his current position. However, one manager who was scheduled for retirement within a few months had no knowledge of who his successor will be. The Vice President-Operations indicated that he recognized this as an issue to be dealt with, that he did, in fact, have several candidates in mind, and that more attention was needed for this situation. The overall process of succession planning could be strengthened, including management training, improved performance reviews, and career path planning.

It was reported that there is also an informal mentoring program such that the Company can start grooming people for advancement when opportunities occur. Generally, there is one area a person focuses on the most, but they are exposed and introduced to other areas as well. Across all Operating Centers there is a key goal of getting all supervisors proficient, not only in their primary area, but also in other areas of responsibility. Generally, the interviewees noted that if a given person is not available, someone else can quickly fill in for that person and do a creditable job.

Findings and Conclusions
(Development, Training and Evaluation)

C5C-1 **There is no process for identifying the needs for development and training, establishing priorities, and defining programs to meet the needs by consulting the potential users of the training offerings.**

No needs analysis has been conducted in the memory of the current human resources staff members we interviewed. Furthermore, no training plan is in place to prepare for future training and development needs of the Company, or to even respond to current corporate or functional goals and/or critical success factors.

The assumption has been that this need would be covered by the Service Company. Even with the proposed offerings by the Service Company for 1997, the needs of the New Jersey-American will not be met without local offerings.

C5C-2 **More attention should be paid to the productivity-related information needs of members of the bargaining units.**

We are impressed with the knowledge the union members have of workforce trends and changes in the nature of the labor-management relationship. We repeatedly heard, however, from union members that they lacked information about the direction of the Company and the likely impact of that direction on their futures as workers. This has an adverse effect on morale.

C5C-3 **The department managers are given budget authority to make use of outside training vendors, but little guidance as to the relative quality of these vendors. Nor is there a curriculum for progressive professional development.**

Outside training is chosen by department heads based on short term needs, not long term developmental objectives.

C5C-4 **The Human Resources staff did not have a training and development professional in place at the time of our audit interviews, although current plans are to add one. Nor does it have dedicated training facilities and equipment.**

We were told the reason training has not been offered by the Service Company is that the physical plant has been undergoing remodeling, and training rooms were not available, although certainly hotel conference facilities are available.

C5C-5 **Employees are encouraged to assume responsibility for their own professional development, and a fully-adequate tuition reimbursement program is in place for those who want to pursue degrees and certifications on their own time in local colleges and trade schools. However, there is no formal career counseling function or guidance on ways to most effectively advance one's career.**

Employee development planning is encouraged at all levels, and is part of the annual performance evaluation process. Workers, especially hourly workers and members of bargaining units, are being educated to realize that promotions are increasingly based on skills and qualifications as well as time in grade or on a job. In order to attend a company-offered training event on company time, an employee must be nominated by someone in upper management.

C5C-6 **Performance is evaluated regularly using a standard form that is adequate in design and regarded as "user-friendly" by managers.**

The performance dimensions are sufficiently descriptive of desired behaviors by employees. As noted in the discussion of Exhibit 5-2 in Section 5A: Wage and Salary Practices, the integrity of the ratings by the managers in the Company appears to be as good or better than that of the AWS as a whole.

C5C-7 **It is unclear whether goals are uniformly and systematically communicated to workers at the beginning of the performance evaluation cycle, and whether those goals have any relationship to unit or Company goals.**

The lack of a performance management process to ensure that goals, performance, evaluation and rewards are systemically connected can cause employee uncertainty about what it takes to get a good evaluation and, hopefully, a better than average pay increase at the end of the cycle.

C5C-8 **There is no formal leadership succession planning process in place.**

The next generation of leaders is not being systematically developed. Executive development is by on-the-job training and is not driven by the Human Resources Department. There is no executive development or organization development capability in New Jersey-American or the Service Company.

Recommendations
(Development, Training and Evaluation)

R5C-1 **Perform a training needs analysis for the Company. Prepare a training plan to fill the gaps not filled by the Service Company training function. Add a training and development professional to the Human Resources staff in accordance with current plans and provide that person with a budget and dedicated training space appropriate for a company of 500 or more employees. Provide workers at all levels with business information in an understandable format, to enable them to understand management decisions and comprehend the trends that affect their lives and futures. (Refer to Conclusions C5C-1, C5C-4, and C5E-3).**

Coordinate with the training function at the Service Company to eliminate duplication of effort. Pay close attention to things about which a line manager may be unfamiliar, such as assistance in instructional design and train-the-trainer assistance for technical training activities conducted by departments. Also, be attuned to the need for special customer service training for workers who meet customers face-to-face or on the phone, such as handling irate customers, answering questions about rates, etc.

Proper training improves employee productivity by increasing both effectiveness and efficiency. By demonstrating the Company's dedication and commitment to its employees, it also improves morale, and therefore productivity, and assists in retaining employees. In a company of 500 employees, a productivity improvement of as little as one percent would more than justify the hiring of a training professional.

This recommendation calls for a dedicated training and development specialist, not a human resources generalist who can do standup training on call. This person should be able to do a needs analysis, develop a professional development curriculum, and design training programs. Ideally, the person should have some background in organization development to bring to the Department a long-term planning and development orientation that goes beyond the delivery of stand-alone training programs. An organization development perspective is strategic in nature, and the Company needs a comprehensive training and development strategy that is tied to the mission and strategic direction of the company. A training and development specialist with organization development skills and experience can perform training needs assessments and design a training curriculum that is focused on the preparation of the future leaders of the Company, as well as meeting short-term skill-enhancement needs.

Ideally, as well, dedicated training space should be set aside for Company use and equipped appropriately. Second best is the use of conference facilities in local hotels or motels. A good training professional will be able to provide specifications for a good training facility.

Business information for employees should include profit and loss statements, productivity measures, indicators of how the Company is faring relative to competitors and other industries in the area. It should also include giving them an understanding of the mission, vision and general strategic direction of the Company, so they can feel like participants in helping the Company achieve its objectives.

R5C-2 Establish a regular communication channel between executive management, nonbargaining employees and bargaining unit workers (Refer to Conclusion C5C-2).

The communication flow should go both ways, but the purposes are (1) to continue educating workers about trends in the workforce, (2) to continue preparing them for a new relationship between management and labor, (3) to make them increasingly "business literate," and (4) to attempt to meet their need for information about the direction the Company is taking and its likely impact on their job security.

Also provide bargaining unit employees with plausible explanations for the use of contract workers in positions once filled by union members. (Refer to Conclusion C5D-1 in the next section). Bargaining unit employees are always in a state of high anxiety about their jobs. Any steps that can be taken to reduce that anxiety will improve management/labor relations. Information such as this is the easiest and least costly step to take.

R5C-3 Screen the use of outside vendors of training programs, in consultation with department managers, for quality and applicability to the professional development of workers (Refer to Conclusion C5C-3).

Use the training plan to steer employees toward training opportunities that enhance their professional development. Training that does not fit into the business plan should be passed over in favor of training that improves employee productivity and value to the company.

Look for training that is highly interactive and experience-based in design, giving the learner an opportunity to practice what he or she learns. Avoid training events that bring dozens of people into a large room to hear an entertaining speaker interested in selling books and tapes.

R5C-4 Develop a more aggressive program for encouraging employee self-development, including making the average employee aware of training opportunities for which he or she may apply, both inside and outside the Company (Refer to Conclusion C5C-5).

This would be an obvious duty for a training and development professional, whose responsibilities could include the "business literacy" activities referred to in R5C-2 above.

R5C-5 Install a formal leadership succession planning process (Refer to Conclusion C5C-8).

A succession planning process ties in with management training and development, enables executive management to prepare the next generation of leadership to assume responsibility when needed, and reduces the likelihood of crisis when a key manager leaves the Company unexpectedly for any reason.

5D Productivity and Utilization

The Human Resources Department should provide, to managers throughout the Company, the help they need to achieve a high level of employee productivity and effective employee utilization. This assistance should be provided on a formal basis through a recognized program administered by the Department.

With correct staffing levels, an appropriate use of temporary and contract labor, and motivated and productive employees, the Company can provide high quality, cost-effective service to its customers, and maintain a high level of employee morale.

The approach to productivity and utilization seems to be driven primarily by quantitatively stated headcount goals—reducing the number of employees required to serve a growing customer base. Exhibit 5-11, using data taken from the current Strategic Business Plan, illustrates that improvement by showing the inverse—an increasing number of customers served per employee:

As noted above, a general review and update of job descriptions is currently under way. The last time a general review and update took place was in May, 1991. Since then, job description updates have been accomplished on as as-needed basis only.

Exhibit 5-11
Customers Per Employee: 1995–2000

Year	Total Customers	Total Employees	Customers per Employee
1995 (actual)	333,215	628	531
1996 (budget)	341,709	596	573
1997 (projected)	345,344	589	586
1998 (projected)	349,006	579	603
1999 (projected)	352,725	559	631
2000 (projected)	356,492	559	638

As noted above, much of this improvement in the customer-to-employee ratio will come about from automatic meter reading equipment (to be installed in 1998-99) and other technological improvements in areas such as accounting and customer service.

Findings and Conclusions
(Productivity and Utilization)

C5D-1 **Bargaining unit workers perceive that jobs are being eliminated but the same work is still being done by contractors.**

If this is a temporary expedient or part of a phasing process, union members are not informed, and jump to their own conclusions.

C5D-2 **There are no policies governing productivity measures, their publication or display, and no clear productivity goals tied to the Strategic Business Plan that are available to the employees and can be used to guide and motivate their work behaviors.**

Productivity measures are maintained by individual departments and units within departments. Activity-based accounting being implemented in connection with the J.D. Edwards software will provide a basis for more productivity analysis.

C5D-3 **There is no systematic, Companywide training for managers and supervisors in the application of effective productivity improvement techniques.**

Recommendations
(Productivity and Utilization)

R5D-1 **Establish clearly understood productivity measurements for each work area in the Company and train managers and supervisors in productivity improvement and effective employee utilization techniques (Refer to Conclusions C5D-2 and C5D-3).**

The best way to improve processes and productivity is to involve workers in improving their own processes. They are most easily motivated by being able to see progress—thus the need for measurements that are prominently displayed in easily understood graphic form.

A major opportunity exists for measurably improving productivity by training managers and supervisors in work flow analysis techniques, work flow process improvements, productivity measurement methods and tools, team-building for productivity, and motivating workers to higher productivity.

5E Employee And Labor Relations

Effective employee and labor relations offer several very important benefits:

- Reduction in labor strife, strikes and conflict
- Improved morale, resulting in high productivity and low turnover
- Labor contract and work rules conducive to high productivity and employee welfare.

The Company has a remarkable record of labor peace. There has been only one strike in recent memory—in 1991—and it lasted only a week. The Human Resources Department deserves credit for its excellent work in negotiating contracts and handling grievances with the negotiating units. This is clearly one of the Department's strengths.

A strike plan exists that clearly delineates the responsibilities of nonbargaining employees, by name, in the event of a strike.

Exhibit 5-12 shows the contract status of the New Jersey American Water Company bargaining units:

Exhibit 5-12
Status Of Union Contracts As Of October 31, 1996

Location and Name of Bargaining Unit	Contract Expiration Date	Employees Covered
Shrewsbury Office Utility Workers of America AFL-CIO, Local 395	April 16, 1999	107
Fire Road Office International Brotherhood of Firemen and Oilers, Local 473	October 14, 1999	46
Short Hills Office Utility Workers Union of America AFL-CIO, Local 391	April 3, 1997	89
Lakewood Office International Brotherhood of Firemen and Oilers, Local 473	September 7, 1997	19
Haddon Heights Office International Brotherhood of Firemen and Oilers, Local 473	January 26, 1998	69
TOTAL		330

An examination of the Company's arbitration history shows that that vast majority of grievances are settled before the arbitration stage. Further, the majority of grievances that do go to arbitration are settled in favor of management, as illustrated in Exhibit 5-13.

Exhibit 5-13
Arbitration History

Location	Time Frame	Total Arbitrations	Results
Lakewood	1993–Present	1	Grievance Sustained
Haddon Heights	1993–Present	1	Grievance Denied
Fire Road	1993–Present	0	—
Shrewsbury	1993–Present	5 1	Grievances Denied Grievances Sustained
Short Hills	1991–Present	5 1	Grievances Denied Grievances Sustained
TOTAL		**11 Grievances Denied** **3 Grievances Sustained**	

Findings and Conclusions
(Employee and Labor Relations)

C5E-1 **The management of labor relations is done very well by a competent staff that is held in high regard by management and respected by labor.**

The grievance procedure works well, and nearly all grievances are resolved before reaching arbitration.

C5E-2 **It is too early to determine the impact of the centralization of the Human Resources Department on labor/management relations. So far, it has created no serious problems.**

C5E-3 **Union members are aware that changes are taking place in American industry that will change the way labor/management relations have traditionally been handled. They are uneasy about the changes, and want more information from leadership.**

They want to be players in the game. They want to keep their jobs and retire from the Company. They are aware, specifically, that success in their careers depend on not only seniority but skills and qualifications. But they feel that they are outsiders in a game that is very important to their futures, and this fact fills them with anxiety.

C5E-4 **Employee relations are being handled satisfactorily, particularly those issues pertaining to problem employees.**

Department response is quick. Managers have been briefed in appropriate methods of discipline, records maintenance, counseling and the use of the EAP.

C5E-5 **Employee relations tend to be reactive, however. Little is done in a preventive mode to ensure that problems do not occur.**

Employee opinion surveys by an outside, neutral party for early warning purposes are not done. Individual department managers do most employee relations work, calling upon the Human Resources Department when they come across a sticky situation.

Recommendations
(Employee and Labor Relations)

R5E-1 **Perform a comprehensive employee opinion survey at least every two years, using an outside, neutral party to gather, compile and analyze results (Refer to Conclusion C5E-5).**

If properly designed and executed, an opinion survey will not only provide advance warning of potential workforce problems, but will open lines of communication between workers and executive management. A caution: do not conduct employee opinion surveys unless management intends to take action on the results—either making changes or explaining why changes are not going to take place.

5F Safety

Safety and health management is more than just risk management. It is in the best interest of the Company and the employees that a dedicated, energetic, and perpetual program of safety consciousness be implemented and maintained by the Company.

While in many companies safety is a part of the responsibility of the human resources department, at NJAWC it is the responsibility of what is commonly called the Loss Control Department within the Operations Department, headed by the Director of Loss Control. Both the Loss Control and Human Resources Departments have a role in safety management, however, and there is a need for cooperation between those two departments to reconcile their different charters. In general, the Loss Control Department is interested in promoting vigorous cooperative action in support of safety programs, while Human Resources is often constrained by a lack of manpower and, in some cases, a greater awareness of legal limitations. Safety training is an example of a cooperative program that is limited by manpower constraints, and proposals for drug and alcohol testing of employees involved in accidents is an example of an idea that raises difficult legal issues.

The safety program is apparently taken quite seriously by the Company and by line managers and supervisors throughout the Company. The Human Resources Department has one employee who is responsible for coordinating all primary training programs and arranges for outsourcing some training activities, but much of the safety training is still conducted by Loss Control personnel. Courses currently offered are:

Trenching and Excavations	Confined Space	Lockout/Tagout
Hazard Communication	Hazardous Materials	Hearing Conservation
Respiratory Protection	Personal Protective Equipment	Forklift Safety
Electrical Safety	First Aid	Adult CPR
Defensive Driving	Office Ergonomics	

Appropriate employees are involved in weekly "tailgate talks"—thirty minutes or more in which employees discuss lessons learned on the job about safety. Topics have included:

Work Area Protection	Traffic Control	Back Safety
Ladder Safety	Material Safety Data Sheets	Contact With Poisonous Plants
Hand Tool Safety	Slips/Trips/Falls	Backing and Parking
Winter Driving	Seat Belts & Air Bags	Heat Related Injuries/Illnesses
Cold Related Injuries/Illnesses	Air Monitoring Equipment	Chemical Safety
Housekeeping	Lyme Disease	Handling Compressed Gases
Container Labeling Req'ts	Off-the-Job Safety	Fire Extinguisher Use & Selection
Eye, Head, Hand, Foot & Ear Protection	Proper Use & Installation of Shoring Equipment	Material Handling

Finally, the Department is in the process of establishing an Interactive Computer Based Training (CBT) program, with CBT stations at each operating location. This installation should be completed in 1997. The following topics are scheduled to be used initially, with others to follow:

Hazard Communication	Confined Space Entry	Personal Protective Equipment
Back Safety	Safety Orientation	

The Workers Compensation program is administered by the Director of Loss Control, not Human Resources. Certain workers compensation claims require involvement of Human Resources when "return-to-work," "light duty" or ADA issues come up. The administration of insurance coverage is performed by Loss Control and does not involve Human Resources.

A five-year comparison of Workers Compensation accidents and motor vehicle safety statistics appears in Exhibits 5-14 and 5-15.

Exhibit 5-14
Workers Compensation Safety Record, 1991-1995

Year	No. of Employees	Person Hours Worked	Total Accidents	Disabling Accidents	Lost Workdays	Disabling Frequency Rate
1991	688	1,467,236	83	19	434	12.9
1992	667	1,511,656	99	21	726	13.9
1993	646	1,402,039	99	17	400	12.1
1994	634	1,406,199	104	25	254	17.8
1995	600	1,315,823	79	13	119	9.9

In 1994, there was an increase in the number of total accidents and the number of disabling accidents, but the number of lost workdays actually decreased. There was a substantial improvement in safety statistics in 1995, but this cannot be attributed to an increased emphasis on safety training alone. Such things as weather, interdepartmental transfer of employees and modification of job duties affect safety statistics.

The substantial drop in lost workdays from 1992 to 1995 was primarily a random effect attributable to variations in the number of individuals with long-term or recurring physical problems, although the Company was also working more aggressively with physicians to get employees back to work. Two individuals lost nearly a full year each in 1992, while 1995 was nearly free of such problems. 1996 was back up again to 525 lost work days, mostly attributable to two individuals.

The Company statistics are not directly comparable to national statistics, since the latter only deals with OSHA-recordable cases. The following comparable data was made available to us by the Loss Control Department of the Company (1996 statistics were not yet available):

Exhibit 5-15
Accident Data Comparable to OSHA Data

Year	NJAWC OSHA-Recordable Cases	NJAWC OSHA-recordable Incident Rate (per 100 person-years)	Water Supply Industry OSHA-Recordable Incident Rate (per 100 person-years)
1991	64	8.7	11.2
1992	63	8.3	11.2
1993	65	9.3	10.4
1994	70	9.9	11.4
1995	40	6.1	N/A

Year	NJAWC Lost-Day Cases (includes restricted duty cases)	NJAWC Lost Workday Incident Rate (per 100 person-years)	Water Supply Industry Lost Workday Incident Rate (per 100 person-years)
1991	36	4.9	5.5
1992	45	6.0	6.1
1993	36	5.1	4.7
1994	50	7.1	6.5
1995	40	5.4	N/A

These charts indicate that the Company rates are better than the national average for OSHA-recordable cases and compares favorably with the national average for lost workday cases for the years shown.

The Company's motor vehicle safety record is portrayed in Exhibit 5-16. There does not seem to be a trend in either direction. Annual fluctuations may depend on uncontrollables such as weather, number of water line breakage incidents, and so forth. The Company tracks all incidents, even when only Company vehicles or property are involved, and includes incidents that are not considered reportable by the police (less than $1500 in property damage).

Exhibit 5-16
Motor Vehicle Safety Record

Year	Number of Vehicles	Miles Driven	Total Accidents	Chargeable Accidents	Chargeable Frequency Rate
1991	300	3,581,872	41	23	6.4
1992	305	3,808,340	26	9	2.4
1993	324	3,825,178	34	16	4.2
1994	321	3,540.914	41	13	3.7
1995	313	3,817,442	37	21	5.5

The Loss Control Department does not have readily available national vehicle safety statistics with which to compare the Company's record. The best they can do is to compare the Company's record with statistics provided by the American Trucking Association, which compiled data only on accidents reportable to police officials, and then only for the years 1993 and 1994.

Exhibit 5-17
Comparison of Accident Rate per Million Miles: American Trucking Association vs NJAWC

	American Trucking Association	NJAWC
1993	5.16	4.2
1994	5.0	3.7

Since the Company rate includes all accidents, not just those that are reportable to the police or exceed $1500 in damages, the Company safety rates compare quite favorably to those reported by the American Trucking Association.

Over the last five years, the Company has received numerous awards for its safety program. These awards include recognition by the National Safety Council, the New Jersey Department of Labor, the American Water Works Association, and the Company's insurance carrier. The criteria vary from association to association, but they strongly indicate a solid safety program and a strong commitment by the Company to safety.

Findings and Conclusions
(Safety)

C5F-1 **The safety program is taken seriously by the Company and its managers and supervisors. It is well administered and appears to have a competent and dedicated staff.**

Although it is administered by Loss Control and is independent of the Human Resources Department, there are functional crossovers between the two departments.

C5F-2 **The Employee Assistance Program should be publicized more thoroughly around the Company.**

Many managers do not have complete, accurate information about the EAP program, and the utilization of the program is quite low—too low to form a reliable judgment on how well it is being administered.

C5F-3 **Accident rates might be reducible through data collection and analysis that identified individuals who cause more than their share of accidents, whether because of substance abuse or other reasons.**

At present, there is random drug testing of drivers, but perhaps more can be done. According to OSHA data, 10% of employees typically cause 50% of the accidents. This suggests the existence of so-called "accident-prone" people.

C5F-4 **There is a need for more active cooperation between the Loss Control and Human Resources Departments.**

Safety training personnel would benefit from assistance from a Human Resources training professional, for example, in such areas as course design, audiovisual aids, and presentation/facilitation skills. Health fairs sponsored jointly by Loss Control and Human Resources is another possibility that has been suggested.

Recommendations
(Safety)

R5F-1 **Maintain a data base on employees who cause accidents to determine if a behavior pattern exists (Refer to Conclusion C5F-3).**

In some cases, where possible, it may be advisable to relocate employees who appear to be accident prone to a working environment where work-related accidents are less likely.

R5F-2 **Develop collaboration between Human Resources and the Loss Control staff in employee safety and health promotion activities (Refer to Conclusion C5F-4).**

Combining their separate skills and backgrounds will strengthen the programs, and the fact of collaboration will improve communication and the sharing of ideas. Expanded Human Resources assistance in training is a high priority.

5G Employment and EEO/AA

The employment function provides the Company with its most valuable asset—its people. The effective administration of the employee function (1) affects the quality of the human resource pool made available to the Company; (2) influences the careers and job satisfaction of the employees and impacts retention; and (3) protects the Company from litigation under human resources law.

The easiest, cheapest and best way to prevent employee problems is to stop them at the door. This fact puts great responsibility on the recruitment, selection and hiring process. There have been many changes in the law pertaining to the selection and hiring of employees in recent years. Fortunately, the Human Resources Department appears to be fully prepared to deal effectively in this area, and aided not only by the legal staff of the Company but by retained counsel outside the Company.

The Service Company has developed and periodically updates a detailed "Employment Procedure" manual, with forms required for completion, interview guides to assist interviewers and hiring officials in avoiding illegal questions, and an interview guide specifically aimed at compliance with the Americans with Disabilities Act entitled "Guide for Interviewing Individuals with Disabilities." It is clear that the intent of this manual and these forms is to assist all those involved in the hiring process throughout the System to comply with EEO/AA requirements and Federal employment laws.

There is not much turnover at the Company. The overall headcount is shrinking as a result of consolidation and centralization of some functions at Haddon Heights. The headcount will continue to shrink in the foreseeable future as automation and other technological enhancements are implemented. As a result, the hiring of new employees is a rare occurrence.

The human resources function seems to be handling this area quite well. The Department assists hiring officials with such services as preparing the job posting or the advertisement, screening resumés, providing assistance in developing job-related interview questions, coaching interviewers to avoid illegal questions, and

processing the new employee on arrival. Hiring officials feel they have the information they need to select the right people. They have been advised about EEO/AA requirements and recent changes in law that affect the hiring process, such as the Americans with Disabilities Act.

One weakness in the Department that impacts negatively on the EEO/AA area is the inadequate Human Resource Information System (HRIS). This has been discussed elsewhere in this report, and no recommendation is made because the HRIS is already in process of being replaced by a newer system that is user-friendly and more flexible. The professional staff of the Human Resources Department readily admits that the existing system is inadequate and not current. With a new system soon to be installed, it makes no sense to attempt to revise the existing system. We recommend they make do until the new system is operational.

Exhibit 5-18 shows the demographic breakout of employees at the Company for the last two years.

The Company has experienced very little legal activity in this area in the last three years. The numbers in the exhibit above do not suggest a potential problem, and the EEO Commission has not indicated a need to take action to rectify major imbalances. In 1994, a case was brought forward around the issue of "equal pay for equal work." The Company settled in favor of the claimant before determination. In 1995, a claim of reverse discrimination was brought forward, but the EEO Commission ruled no cause.

More recently, the Company has taken assertive action to require vendors to avoid offensive behaviors on Company premises. One case, involving a vendor who made disparaging remarks about a non-Caucasian Company employee, is still under investigation. Another, involving a truck driver who prominently displayed a pinup in his truck, was reported to his company, and the driver was fined. Both of these cases came up in 1996.

Exhibit 5-18
Employment Data—New Jersey-American Water Company: 1995–1996

Job Categories		NUMBER OF EMPLOYEES										
			White		Black		Hispanic		Asian		American Indian	
		Total	M	F	M	F	M	F	M	F	M	F
Officials and Managers	1995	136	109	22	4	1	0	0	0	0	0	0
	1996	*127*	*96*	*25*	*5*	*1*	*0*	*0*	*0*	*0*	*0*	*0*
Professionals	1995	42	22	17	0	2	0	0	0	1	0	0
	1996	*47*	*31*	*11*	*1*	*2*	*0*	*0*	*0*	*2*	*0*	*0*
Technicians	1995	14	9	1	0	2	0	0	0	1	1	0
	1996	*11*	*4*	*4*	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*1*
Office and Clerical	1995	103	9	73	2	15	0	3	0	1	0	0
	1996	*97*	*11*	*65*	*1*	*15*	*0*	*4*	*0*	*1*	*0*	*0*
Skilled Workers	1995	121	100	2	17	0	1	0	1	0	0	0
	1996	*117*	*97*	*5*	*12*	*0*	*2*	*0*	*1*	*0*	*0*	*0*
Semi-skilled Workers	1995	163	118	11	27	3	3	1	0	0	0	0
	1996	*183*	*125*	*18*	*33*	*4*	*2*	*1*	*0*	*0*	*0*	*0*
Unskilled Workers	1995	19	17	0	1	0	1	0	0	0	0	0
	1996	*10*	*10*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
TOTALS	1995	598	384	126	51	23	5	4	1	3	1	0
	1996	*592*	*374*	*128*	*53*	*23*	*4*	*5*	*1*	*3*	*0*	*1*

The Company has assigned a human resources professional the additional duty of ombudsman, to deal specifically with potential EEO/AA issues as they come to light. All employees have access to this ombudsman and can call attention to potential problems before they get out of control. The Company has an EEO policy and employment procedure, and an Affirmative Action Program modeled after a template produced by the Service Company. All actions under either EEO or AA are monitored by the Service Company, and reports that are completed for the federal government are funneled through the Service Company for signoff before forwarding to the appropriate federal agency office.

Findings and Conclusions
(Employment and EEO/AA)

C5G-1 **The staffing activities, while minimal, are done in a procedurally satisfactory fashion and legal requirements are met. However, the time that it takes to fill some positions, especially highly skilled positions, may be shortened upon review of this activity.**

C5G-2 **Information regarding human resources law is being distributed to managers and supervisors in a timely fashion. However, the information the managers and supervisors operate from is inconsistent and not always accurate.**

They get good information initially, but they sometimes forget about it until necessity compels them to use it. Human resources legal issues are not in the forefront of the minds of most managers, and proactivity in this area is lacking. Implementation of human resources policies and procedures in most departments is considered a low priority extra duty.

Recommendations
(Employment and EEO/AA)

R5G-1 **Flowchart the human resources selection, hiring and orientation process and identify opportunities for procedural improvements that might streamline the hiring process (Refer to Conclusion C5G-1).**

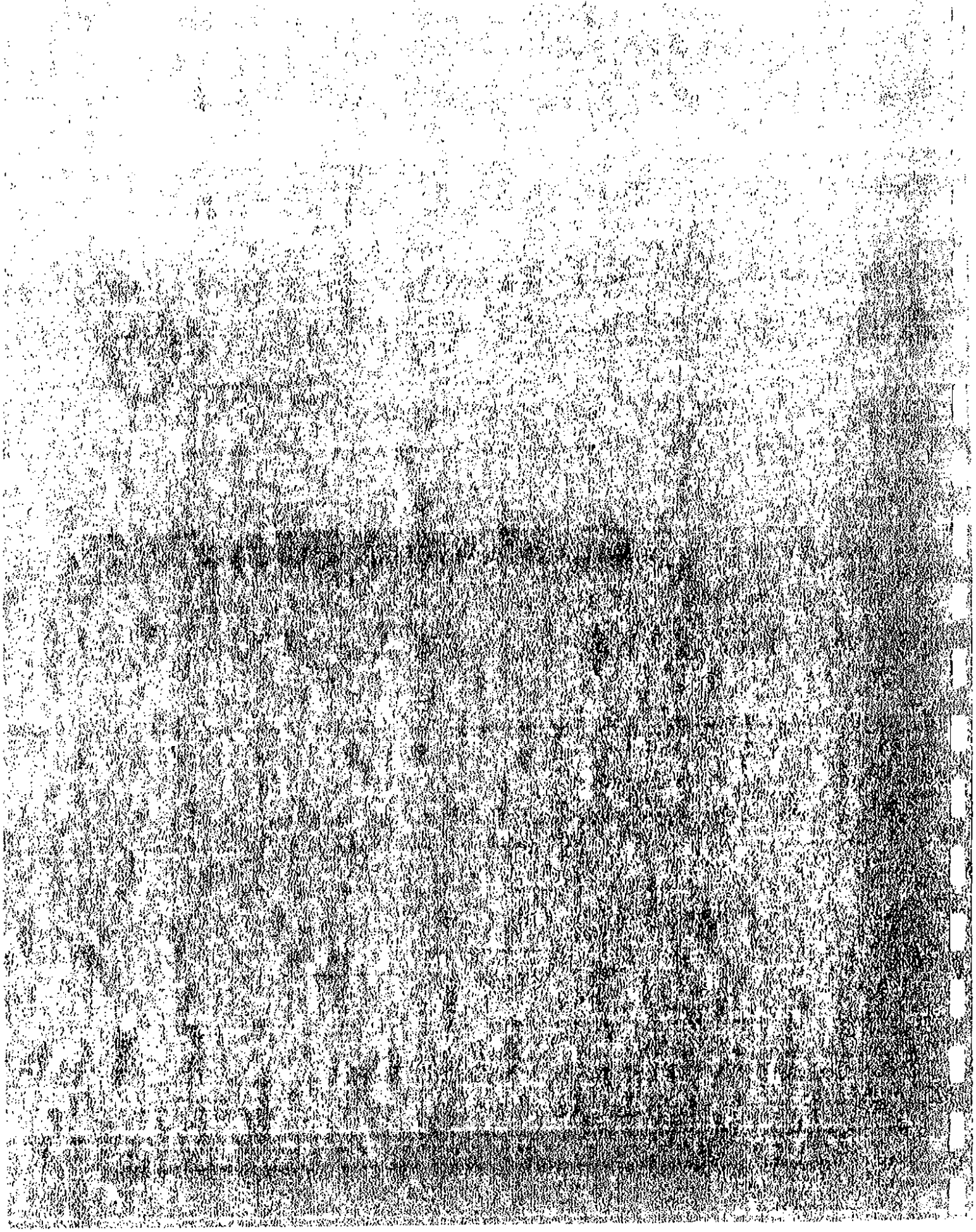
This will also help managers and supervisors to better understand the processes.

R5G-2 **Provide periodic refreshers for managers and supervisors in human resources legal issues (Refer to Conclusion C5G-2).**

A serious effort must be made to impress upon the managers and supervisors of the company that human resources law is not an avoidable nuisance but a major managerial responsibility. Human resources must not assume that a memo or even an in-person presentation on human resources law concerns is sufficient to keep it foremost in the minds of the managers and supervisors of the Company. They have plenty of other day-to-day pressures that will take priority.

Chapter 6

Customer Services



Chapter 6
Customer Services

The Customer Services functions include the main arenas in which the utility interacts with its customers. Historically, however, many utilities have neglected both the "customer" and the "services" parts of "customer services," emphasizing instead the routine collection and processing of data and revenue.

What is generally required of utilities today is more than just the adoption of specific changes in customer service programs; rather, a fundamental shift in the philosophy of management is needed. Management has to appreciate that the business exists to satisfy the customers' needs and wants, not just to move water through pipes. Pleasing the customer through customer contact is therefore an essential part of the company's mission, not a diversion from its real business.

The Customer Services functions are at the core of the new focus of utilities generally. As utilities begin to embrace, or at least confront, competition, they find that they are competing for living, breathing customers, not just geographic territories and meters. And as public expectations change, regulatory commissions, including the New Jersey Board, find that members of the public are less and less tolerant of what they consider bureaucratic attitudes on the part of either government representatives or utilities. It is therefore important for utility managers and all employees to embrace an attitude of genuine concern for the broad array of their customers' interests.

The NJAWC Customer Relations Department, and especially its leadership, appears to be fully cognizant of the department's responsibility for staying in close touch with, and satisfying, customers' needs and concerns. The leadership of the department is articulate in expressing its commitment to providing a high level of customer service that compares favorably not only with other utilities, but with the best nonregulated businesses as well.

On the other hand, there are a couple of deficiencies noted in the Complaints and Inquiries subsection of this section that raise questions about how effectively those policy objectives are carried out in practice. While the problems are not unusually serious, there are deficiencies in (1) the way complaints are recorded and utilized to improve customer service, and (2) the formal training of Customer Service Representatives in principles of customer relations.

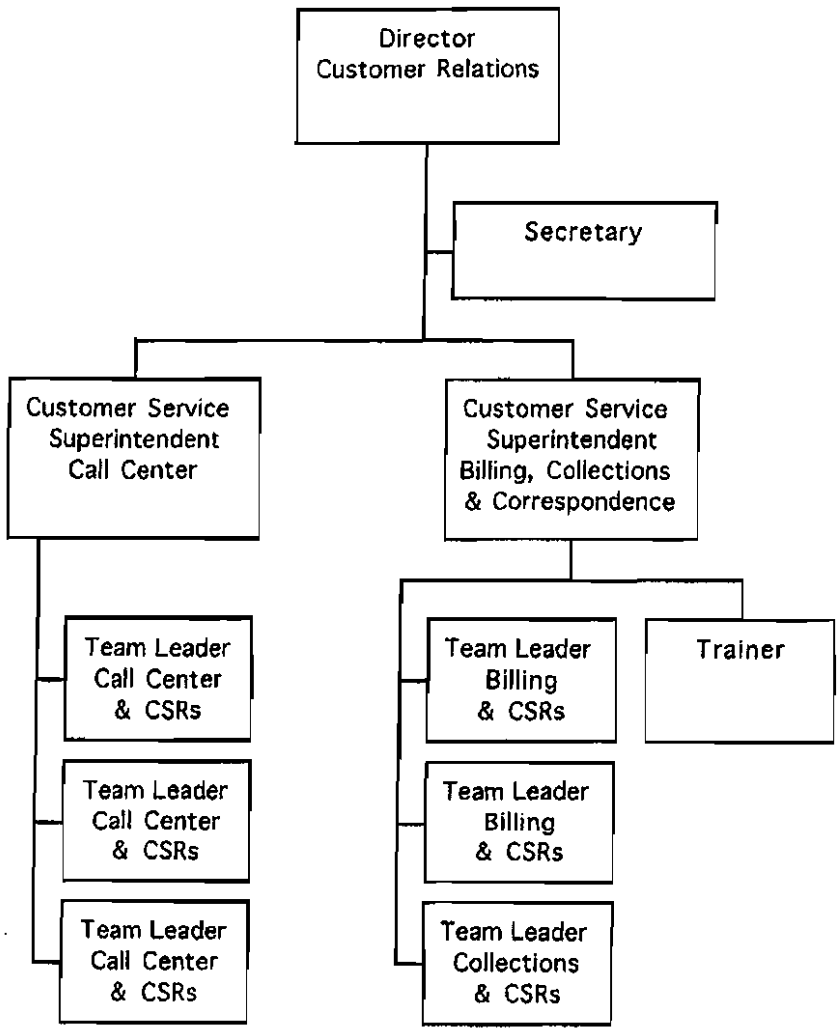
The customer service inquiry is organized into six areas of evaluation:

A. Meter Reading
B. Billing, Credit, and Collection
C. Complaints and Inquiries
D. Conservation
E. Marketing
F. Service Theft

Most of the six areas are provided by the Customer Relations Department, whose organization structure is shown in Exhibit 6-1. Meter Reading, however, is provided by System Operations, as is some of the Service Theft function. There is no specifically-designated marketing function.

Some of the Company's customer service functions have recently been centralized. The major centralized functions include those most readily adaptable to telephone and mail contact with customers: Billing, Credit, and Collections; and Complaints and Inquiries. The only major function not centralized is the one that requires on-site access to the customers' premises: meter reading. The three minor functions that are classified under Customer Service in the BPU's audit structure—conservation, marketing, and service theft—are not assigned to any particular organizational unit, and the functions are shared by headquarters and field organizations.

Exhibit 6-1
Organization Structure - Customer Relations Department



6A Meter Reading

The meter reading function is now organizationally a part of Field Service, which is part of Operations rather than Customer Relations, but the topic is treated in this section in accordance with the BPU's normal organization of topics.

Meter Reading has undergone and is undergoing substantial changes. It has recently been integrated with Field Service within each Operating Center, and the distinction between meter reading and field service is no longer as sharp as it was, particularly at the supervisory level. All supervisors now have the title "Field Service Supervisor" and share tasks.

Change to Monthly Reading and Measures to Improve Productivity

As of August 1995, meter reading frequency was changed from quarterly to monthly, almost tripling the number of readings required (large meters had been read monthly already). This was accomplished without greatly increasing the number of meter readers, by means of several changes implemented concurrently.

One was the diversion of more hours to meter reading from service work such as meter change-out, with the latter initially being assigned more frequently to outside contractors, although that practice has been discontinued, and also handled more often by in-house personnel on overtime or flex time. The overtime/flex time scheduling is advantageous also because access to inside meter locations, which represent the most important change-out opportunities, is easier during evenings and weekends.

A significant improvement in meter reading productivity was accomplished through the restructuring of routes with the use of route management software, reducing the number of routes by 40%. The earlier routes were not well-balanced and generally too short for a full-day's work, requiring the mid-day reassignment of meter readers to routes or other work, with some loss of efficiency. The average meter reader actually read meters only the equivalent of 15 working days per month, traveling between routes and performing other functions the rest of the time.

The new routes are built on a standard of six-to-seven hours per day per route, depending on the travel time required.

The time required for reading a meter has also been declining steadily due to the change-out of old meters with newer touch-pad models, although the improvement was not always immediately reflected in productivity prior to route restructuring. The change-out also improves the accuracy of readings, reducing the need for rereads. While there have been no quantitative studies of the overall improvement in either time or accuracy, some improvement may be confidently asserted because of the change in technology and procedures. The technology used by New Jersey-American includes a "touch-pad" reading system, a pulse-generation system for outside visual reading of inside meters, and straight-read meters.

The accuracy of readings is not known with precision, but is believed to be high for touch pad models. The accuracy of even visual readings is improved by keypad entry into a gun because the gun beeps if the reading is out of the expected range. Remote-reading pulse generation meters, however, are subject to under-reading due to either customer manipulation or electrical malfunction, because the remote indicator counts and accumulates pulses received from the meter and may not duplicate the inside reading if pulse transmission has been interrupted or if the outside monitor has been contaminated by spiders, etc. For this reason, an inside reading is required once a year.

Meter Change-out Schedule

Approximately 60% of the meter installations now have touch pads. The present schedule, based on a 10-year meter life cycle, calls for full replacement of inside meters in 2½ years, with approximately 41,000 change-outs in 1997, 45,000 in 1998, and 43,000 in 1999. A recommendation in Section 3B: System Operation and Maintenance in Chapter 3: System Operations calls for the extension of the meter life cycle from 10 years to 15 years except for inside meters and other problem meters. This would allow for a more rapid replacement of the inside meters without increasing the budget. The Company is now developing a plan for such a change, and believes that most inside meters could be replaced in 1997.

Exhibit 6-2 tabulates the number of meters in each operating center by type.

Exhibit 6-2
Number of Meters by Operating Center and Type

	Inside Settings			Outside Settings		
Op. Center	Standard	With Remotes	Encoder	Standard	Encoder	Total
Haddon	13,256	979	20,669	16, 693	39,728	91,325
Shrewsbury	14,798	11,283	20,753	3,579	35,449	85,862
Short Hills	2,844	36,111	38,500	709	5,156	83,320
Fire Road	3,120	4,855	12,840	23, 411	23,258	67,484
Totals	34,018	53,228	92,762	44,392	103,591	327,991

Productivity

There are a total of about 328,000 meters. Of 308,000 listed on a meter-reading report of October 1996, approximately 93% were active accounts in that month. In that month, which had generally good weather, 95% of the meters—active and inactive—were visited, and approximately 90% of the active meters were read. (Fire Road, representing 14% of the system, does not have a count of active accounts, but that operating center read about 90% of all meters.)

The highest reading percent was Washington's 98.7%, and the lowest was Haddon Heights' 83.1%. Haddon Heights' poor reading percent is attributable to the fact that it is the only operating center that has a large number of inside meters without registers that can be read outside. Haddon Heights had 11,160 meters coded as "Could not get in - left card" in October, which represents about 74% of the failures to read active accounts in Haddon Heights, and 43% in the entire system excluding Fire Road. Those 11,160 also represent 83% of the use of that particular code for all of NJAWC in October.

The improvement in meter reading productivity associated with the change to monthly readings, route restructuring, and associated changes has not been accurately measured or analyzed, and pre-restructuring data is incomplete, but an indication of productivity improvement can be gleaned from a comparison of "typical" before-and-after numbers shown in Exhibit 6-3.

Exhibit 6-3
Typical Number of Meters Read per Day per Meter Reader

Operating Center	Prior to Route Restructuring	1996, After Route Restructuring	Typical Percent Increase
Haddon Heights	243	415	71%
Lakewood	260	362	39%
Shrewsbury	249	348	40%
Short Hills	320	385	20%
Washington	141	281	99%
Fire Road	350	432	23%

The number of meters read per day is subject to a number of variables, including weather, distance between homes, etc. In most cases it ranges from less than 300 to more than 400 meters per day. On the high side, some individual routes yield up to 1100 readings per day, if the route includes very dense development, such as a condominium complex.

The overall current cost to read a meter is reported to be $0.96, including direct labor, P.I.T., transportation, and uniform expenses. Cost-based management is being initiated to track such costs for future analysis. The new system will provide all direct and indirect costs.

Process

All meter readers are organized, routed and dispatched in generally the same manner. They report to a central location early in the morning; are given their assignments, vehicles, and equipment (which are organized the night before); go to their assigned routes; complete their routes; report back to the office and turn in their equipment and readings. A computer program was developed, and is still in use, to increase productivity in meter reading by attempting to optimize the routes.

The process for downloading meter readings is: all readings are entered by the meter reader into his or her gun either by keying them in or by the touch pad. Then, at the end of the day, the magnetic card in the gun is removed and downloaded into the route management system. The Field Service Supervisor then creates a billing file the next morning, does some global re-coding (for example, on a day hampered

by heavy snow, he or she might enter the code for snow on every failure to read a meter that is not otherwise coded). The Supervisor then transfers the data to the AS400 through a PC. The Billing Department then has a few days in which to try to get unread meters re-read. They do this by sending a list of such meters to the Field Service Supervisor, who assigns them to a Customer Field Representative (CFR) to be reread. The data is then entered into the system. A total of two or three days thus elapses between the time the meter is supposed to be read and the time it is entered formally into the system.

Meter reading information is collected and reviewed, and routes are re-developed on a regular basis using constantly updated data. The daily meter reading reports include data on accounts read, accounts not read, accounts coded, punch-in times, time actually spent reading meters. Meter readers can report a variety of information, such as that a given route has taken them out of their way or directions to find a meter are not correct, and this will be factored into the new routings.

Meter reading results require about four days to be processed into a bill (five for Haddon Heights because of the large number of inside meters). This includes the reading day, sending the data to information systems, the bill edit, to the billing department for corrections, and on the fourth (or fifth) day, the bill is sent. The readings are considered to be very accurate and the interviewees have not heard of any particular accuracy problems. It was also noted that since the meter readers have no information on previous readings, they cannot input fictitious readings.

As to the overall quality of customer service related to meter reading, the interviewees noted they get very few complaints concerning the meter readers. Those few complaints that do come in are of the "walked through the bushes," tracked mud," or "Is this really an NJAWC person?" variety.

Efforts to Increase Uniformity

Efforts to bring uniformity to the meter reading policies and practices of the various operating centers are progressing primarily through cooperative meetings among supervisors to work out their differences and select a best approach. In view of the lack of a central management for meter reading, except at the level of Vice President of Operations, this "grass roots" approach is probably the best approach, and

appears to be working well. Where possible, it is always desirable to involve grass-roots personnel in the process of a cooperative structuring of their own work.

The lack of centralized management for meter reading is not, in our opinion, a problem needing correction. Unlike the other customer service functions, meter reading is an activity conducted in the field, and there is an advantage to providing direct local management instead of remote centralized management. It is also very similar to the field service function and has, in our opinion, been wisely merged with that function within Operations to produce economies through cross training and personnel backup.

Nevertheless, there is a clear need for uniformity among the operating centers in meter reading policies and practices, and the current effort to improve uniformity should continue. The Vice President - Operations does and should exercise oversight of the process, and, in concert with the Director - Customer Relations, should review and approve agreements worked out by the operating center representatives to ensure that they are workable and consistent with the needs of other departments, such as Billing and Collections.

Findings and Conclusions
(Meter Reading)

C6A-1 Meter reading costs and productivity have not been regularly studied and analyzed.

While organizational changes and differences in policies always tend to complicate the comparison of results over time and among operating centers, it is important to track, compare, and analyze the costs and productivity of meter reading. This has not been done historically on a consistent, regular basis, although a current cost of $0.96 per meter was provided and plans are to identify and analyze all direct and indirect costs on a continuing basis.

Recommendations
(Meter Reading)

R6A-1 Continue with plans to establish a regular practice of tracking and comparing meter reading costs and productivity based on J.D. Edwards data, and analyzing the data to develop standard costs and labor productivity for reading meters. (Refer to Conclusion C6A-1)

The standard should recognize the type and location of meters, walking distance between meters, demographics, and weather or at least season.

Comparisons will provide a stronger basis for (1) evaluating individuals and groups, and (2) understanding the effort and costs associated with different types and locations of meters and different field circumstances, possibly leading to improvements in the strategy for meter replacement, route structuring, etc.

6B Billing, Credit, & Collections

The Billing, Credit, and Collections function, generally just called Billing and Collections in NJAWC, sends out bills and, when payment is delinquent, institutes collection proceedings and sometimes negotiates payment agreements.

As shown in Exhibit 6-4, they are responsible for handling over 323,000 NJAWC water accounts and over 18,000 sewer accounts monthly.

Exhibit 6-4
Number of Accounts by Type and Operating Center

	Short Hills	Fire Road/ Lakewood	Shrewsbury	Hadden Heights	Total
Water Accounts					
Residential	70,570	57,328	77,536	79,830	285,264
Commercial	10,807	7,883	5,575	7,847	32,112
Industrial	304	12	56	77	449
Fire & Special	1,210	504	804	872	3,390
All Other	503	347	595	447	1,892
Total	83,394	66,074	84,566	89,073	323,107
Sewer Accounts					
Residential		14,147			14,147
Commercial		4,407			4,407
Industrial		8			8
Fire & Special					
All Other		61			61
Total		18,623			18,623

Policy-Making and Management Control

The establishment of sound customer relations policies, especially as regards the sensitive and potentially divisive issues involved in credit and collections, is an

important, and should be a central, function of the Customer Relations Department. While it is true that most collections policies are established by the BPU, there is clearly room for management discretion in many areas, and certainly for management appeals to the BPU in virtually all areas of collections policy.

While collections policies are documented, there are inevitably some issues that must be decided on a case-by-case basis. The resolution of such issues may require progression part-way or all-the-way up the chain of command from the CSR to the Supervisor to the Superintendent to the Director of Customer Relations to the Vice President and Treasurer, who adds the Finance Department's perspective.

Recent Changes and their Effects

Because no surveys or other formal studies of customers' views of the Billing and Collections function have been conducted, the Company must rely upon Call Center statistics as an index of customer satisfaction or dissatisfaction, even though those statistics do not represent an unbiased sample. On that basis, the initial reaction of customers to the switch from quarterly to monthly billing was generally unfavorable, but the rate of complaints has predictably declined. The opinion of the management is that most people just reacted negatively to change. A number of comments were received, however, that specifically expressed suspicion that the company was motivated by the lure of earlier or greater receipts. These suspicions could become a customer relations concern if they continue or are accompanied by other suspicions regarding the Company's motivations.

But customer objections notwithstanding, the audit team finds no objective basis for criticizing the Company's shift to monthly billing or questioning its motivation in doing so. We view the change as an improvement in both revenue management and customer service. It provides more current revenue to the company, limits the loss of revenue due to nonpayment, reduces the magnitude of customers' high-bill surprises in the case of leaks, and provides more timely feedback to customers of the costs of seasonal lawn watering and other large uses.

As a result of the centralization that began in August 1995 and finished in December 1995, total Billing and Collections employees dropped from 90 to a little over 40, in spite of the change from quarterly to monthly billing. Fifteen people in Billing are required to send monthly bills to 325,000 customers, supported by the EDIS

customer accounting system and automatic envelope stuffing equipment. These 15 employees include those who review and edit meter readings and make manual adjustments. Four people review billing edits, two make adjustments (*e.g.*, high bills, meter removals), one does final edits, and two handle phone and card readings.

Processes

Separate teams have very recently been established—one to process the bills for each operating center. Productivity measures have not yet been defined, and may not be fully defined until activity-based accounting is put in place with the J.D. Edwards system, but some form of comparison of teams will be instituted as a performance incentive.

The billing process normally takes four days (five for Haddon Heights) from meter reading to mailing of bills. On the morning of the second day after the reading, Billing gets the data, together with a report on unsuccessful readings showing a code indicating the reason. They then review the data and call for rereads of some meters.

Approximately 10% of customers in any given month are between 60 and 90 days late. At this point they get a reminder notice, which is on the second and third bill after the one they didn't pay. After the 90-day period, a decision is made as to whether the account should be written off—the credit record is checked, determination is made as to whether the customer has moved away, etc. Actual write-offs occur once a quarter following the 90-day age of the account. They write off approximately 0.5% of revenue each quarter. Write-offs occur in March, June, September and December.

The Customer Service Representative (CSR) can accept agreements with the customer for delayed payment of some sort, and any such agreement will stop collection actions. The CSR has considerable flexibility, and there are no written guidelines as to what sort of agreements can be worked out.

While CSRs do not receive formal classroom training in the human relations aspects of dealing with customers, such as in techniques of dealing with irate customers, there is a library of videotapes available to CSRs on such topics.

The collection personnel do not initiate calls to customers except for large customers. When the written notice is sent out, the customer is asked in that notice to read the

meter and call in the reading, or make arrangements to schedule a meter reading. If they fail to call back, then the water will be shut off on the fourth month if a review of their credit history indicates that is appropriate. It is theoretically possible for a customer to let things ride and then consistently call in erroneous numbers and get away with reduced payments for an extended period of time, but Collections tries to make an actual reading at least once a year. As company-wide monthly readings have been in place for only a little over a year, it is too early to tell whether erroneous customer readings are a serious problem.

Calls from customers reporting their readings are not automated. They are read into an Audex system which simply records their voice. Then a CSR has to copy the information from the audio tape onto a piece of paper, and it is later key punched. There are two steps because the process for updating the data is entirely batch, and therefore cannot be done on-line.

The Company has been able to keep its rate of revenue write-offs to 0.5% of operating revenue. It attributes this success in part to its aggressiveness in following through with service shut-offs in cases of nonpayment.

Other procedural changes that have been studied in recent months are the use of phone calls to more delinquent customers and the acceptance of credit card payments.

Waiting for Orcom & J.D. Edwards

The present customer accounting and information system and the general accounting system are both inadequate in many ways, and personnel in Billing and Collections, like personnel throughout the Company, are looking forward to their replacement by Orcom and J.D. Edwards, respectively. Several deficiencies in the Billing and Collections procedures will be corrected with the installation of the new systems. Some could have been corrected earlier, but in most cases it makes sense at this point to await the improved capabilities of Orcom and, where relevant, J.D. Edwards.

Orcom, the customer accounting software system that will replace the present EDIS in March 1998, will help customer service in several ways. For one thing it will be possible to "drill down" from a field into other applications to pull together all of the information relevant to a situation. Orcom will generate letters and service orders.

Also, pressing a "help" key will provide a standard list of questions to ask in dealing with a customer, which will help to improve uniformity of information gathering. Corrected bills will be generated automatically when adjustments occur. It will be possible to identify where calls are coming from (the actual address) and pull up the screen for that particular address. It will be possible to put out a service order by merely clicking on an icon, with no need for re-entry of name, address, etc., and there will be automatic generation of all regulatory requirements.

Orcom will also allow easier linkages between different elements of the data base to keep things from "falling through the cracks." For example, customers who default on deferred payment agreements can, under the present system, call back and set up a new deferred payment agreement without the Customer Service Representative being aware that they have defaulted on an existing one. This information will be provided on the CSR's screen automatically by Orcom. Furthermore, defaults on deferred payment agreements can be flagged and reported regularly by Orcom, whereas now defaults may not be recognized unless a customer's account is actively queried.

Deposit procedures can also be improved with Orcom. Presently, there is no reliable way to recognize that a move-in customer requesting new service has an unpaid final bill at another address, or a generally poor credit record. Orcom will make this information available. Deposit policies are controlled centrally and are presently uniform throughout the Company, geographically, but there is a lack of consistency in their application because of a tendency toward case-by-case handling.

Orcom will also provide, for the first time, a central data base of delinquent or bad-debt accounts. At present there is one data base for each operating center, so a property owner who has delinquent accounts in several operating center territories can escape notice as a multiple violator. Information on delinquent accounts by customer type (residential, commercial, industrial) and by account size will also become available.

J.D. Edwards and the activity-based accounting that it offers will allow a better view of the costs of various activities. At present, the Company does not have information on the cost of the billing activity per bill, for example, or the cost of collections per account or per delinquent account. Comparisons over time or with other utilities are

therefore not possible. The J.D. Edwards system, with its activity-based billing, will make that information available.

Activity-based accounting will also provide more accurate information on the actual costs of service disconnections and reconnections. At present, the company believes that its reconnect fees—$23 during the day and $55 after hours—approximately cover the actual costs of disconnecting and reconnecting, but there are no studies to verify that.

Findings and Conclusions
(Billing, Credit, and Collections)

C6B-1 Collections policies are not yet fully developed, following the consolidation of the function.

Because of the importance of collections policies to both customer relations and revenue production, a complete set of policies is necessary to minimize the need for potentially inconsistent case-by-case determination.

C6B-2 The assignment of responsibility for establishing collections policies and for decisions regarding individual special cases is not entirely clear and is not fully documented.

Interviewees were in some cases uncertain how the responsibilities were assigned.

C6B-3 The Company needs to improve its formal performance and productivity measures for Billing and Collections.

While various measures are available and may be looked at, there is not a formal set of accepted measures that are routinely tracked and compared over time, among operating centers, and with other companies.

C6B-4 There does not exist a convenient management report that summarizes the productivity and performance of the Billing, Credit, and Collections function and their changes over time.

The information necessary for assessing and tracking performance and productivity is scattered in a number of places. The Company was not

able to provide a tracking of billing, credit, and collection costs over time, for example.

C6B-5 The Aging Reports could be more convenient to use for management control.

There are two aging reports. The detail report has no summary aging information for the Company as a whole, and the only summary information that exists in that report is separated on six separate pages—one for each operating center—scattered throughout a 350-page computer printout of details on individual account numbers. There are no useful comparisons between operating centers because there are no ratios that would allow the meaningful comparison of operating centers of different sizes. And it is inconvenient to compare with prior months because each month's printout is two inches thick. No distinction is made on the aging data between residential, commercial, and industrial customers.

The summary report is more useful, showing total dollars by age for each operating center and for the Company as a whole. It also conveniently shows historical month-by-month comparisons in both tabular and graphical form.

What is still needed is another summary report that shows dollars on a per-account basis to allow comparison across operating centers and over time, and that also shows age distributions as percentages instead of dollars for similar comparison purposes.

C6B-6 There is inadequate control over the accuracy of customer-called-in meter readings.

In the case of meters to which meter readers cannot easily gain access, customers can deliberately call in erroneous readings for an extended period of time before a reading by Company personnel corrects the situation. Customer readings are considered "actual" rather than "estimated," so the absence of a reading by Company personnel is not as obvious as it might be and the pressure to obtain a regular reading to replace a succession of customer readings is therefore less than in the case of a succession of estimated readings.

This conclusion and the following three will have declining significance as existing inside meters are replaced by encoding meters that can be read from an outside location.

C6B-7 The procedure for data entry of meter readings called in by customers is inefficient.

The customers' calls are voice-recorded on an Audex system. A CSR then listens to the recording and hand-writes the data onto a piece of paper, from which it is later keypunched. It cannot be key-entered directly into the system because the data update process is entirely batch. Nevertheless, it could be key-entered into an off-line PC database for subsequent uploading.

C6B-8 Card readings—meter readings mailed in on post cards by customers—typically arrive too late for the billing schedule, so either a revised bill is issued or the card reading is ignored.

Card readings that are ignored are of no value, and card readings that require a revised bill are seldom worth the cost and trouble to the Company and the customer. Furthermore, the fact that a customer has filled out and mailed in a card reading creates the expectation that it will be reflected in the next bill. If it is not, and especially if it is permanently ignored, the perceived quality of Company service is impaired.

C6B-9 The procedure for follow-up on unread meters imposes an unnecessary delay in the billing cycle, but the Company currently plans to solve the problem by installing encoding meters first in those inside locations that present the greatest access problems.

Because off-cycle billing (removal of problem accounts from the regular billing schedule for separate billing later in the month) is not now possible and will not be possible until the EDIS software is replaced by Orcom in March 1998, all bills are delayed by about two days in order to allow for rereads of some of the missed readings.

The most common reason, by far, for successive failures to read a meter is lack of access to an inside meter.

C6B-10 Collections personnel do not initiate calls to delinquent customers except for large customers.

Most delinquent customers are notified, if at all, by a visit to their home. This is inherently much more costly than a phone call, especially when several visits may be required to find someone home. While it is true that in the case of rental properties a notice must be posted on the premises anyway prior to shutting off service, a shut-off notice should be preceded by at least one telephone collection attempt.

The Company currently plans to try telephoning more customers.

Recommendations
(Billing, Credit, and Collections)

R6B-1 Continue the process of establishing and distributing a comprehensive and usefully-organized set of collections policies, and identify which are mandated by the BPU or other state authority and which are company policies and therefore more amenable to modification. (Refer to Conclusion C6B-1)

Every CSR and many other Customer Relations personnel should have a personal copy.

R6B-2 Document who is/are responsible for establishing collections policies and for deciding individual cases as exceptions. (Refer to Conclusion C6B-2)

There might be a "chain of command" with each position authorized to make decisions at a different specified level of responsibility.

R6B-3 Develop formal performance and productivity measures for Billing, Credit, and Collections for comparisons over time, among operating centers, and between NJAWC and other water utilities and even gas and electric utilities. Compile a monthly management report, manually until it can be done by computer, that presents in convenient format the information needed for assessing and tracking the performance and productivity of the Billing and Collections functions. (Refer to Conclusions C6B-3 and C6B-4)

Many measures are either already collected or are easily collectible. Billing measures should include billing lag, accuracy, bills per employee, percent of estimated bills, and percent of bills based on customer readings. Collection measures should focus on results-oriented measures that lend themselves to comparison, such as:

- Actual and seasonally-adjusted past due accounts (numbers and dollars) by age and type of account as a percent of total accounts and revenues
- Actual and seasonally-adjusted accounts written off as a percent of total accounts by type.

Key activity measures should also be included, such as notices sent out, etc., but they should not distract the focus from measures of results. The purpose is to provide a continuing basis for assessing strengths and weaknesses of the department and to indicate where ideas should be adopted from other companies.

Once a set of performance and productivity measures is decided upon, they should be assembled into a convenient management report that facilitates comparisons over time, among operating centers, between types of accounts, and between companies, and perhaps between types and indoor-outdoor locations of meters.

As an example, produce a Summary Aging Report that facilitates management monitoring and control. (Refer to Conclusion C6B-5) The information at present does not show ratios to facilitate the comparison of operating centers of different sizes. There is one report for each operating center for each month that shows the following information (although formatted somewhat differently):

Existing Aging Summary Report

12/31/96 Haddon Heights	Credit Balance	No Bill Date	1 to 30 Days	31 to 60 Days	61 to 90 Days	Over 90 Days	Total
Active Accounts ($)	-127,415	287	2,429,317	545,717	241,672	151,271	3,240,849
No. of Active Customers	2,990	4	50,780	10,324	3,791	1,315	—
Final Bill Accounts ($)	-5,885	0	37,680	19,879	35,958	54,764	142,396
No. of Final Bill Customers	130	0	383	206	198	8	925
Total Accounts ($)	-133,300	287	2,466,997	565,596	277,630	206,035	3,383,245
Total No. of Customers	3,120	4	51,163	10,530	3,989	1,323	—
Residential Accounts	—	—	—	—	—	—	1,817,733
No. of Residential Customers	—	—	—	—	—	—	48,328

The existing summary report shows total Company data and shows a comparison over time, but otherwise is limited to the same data.

Also useful would be a nine-page report each month, with each page similar to the following example. The nine pages would show residential, commercial/industrial, and total, and within each of those three categories a further breakout by active accounts, final bills, and total. The report would call attention to trends over time and differences among operating centers, and would facilitate close management of collections.

Suggested Aging Summary Report

12/31/96	1 to 30 Days	31 to 60 Days	61 to 90 Days	Over 90 Days	Credit Balance	No Bill Date	Total
No. of Accounts							
Haddon Heights	51,163	10,530	3,989	1,323	3,120	4	70,129
Short Hills	40,253	8,103	2,947	1,014	2,969	1	55,287
Washington	2,665	613	234	88	140	0	3,740
Lakewood	7,091	2,295	944	315	913	0	11,558
Fire Road	27,267	4,808	1,568	440	1,688	0	35,771
Shrewsbury	49,307	10,365	3,749	1,201	3,862	2	68,486
Total	177,746	36,714	13,431	4,381	12,692	7	244,971
$							
Haddon Heights	2,466,997	565,596	277,630	206,035	-133,300	287	3,383,245
Short Hills	2,654,387	608,053	330,284	217,306	-159,675	104,941	3,755,296
Washington	99,159	22,476	9,176	9,921	-4,314	0	136,418
Lakewood	636,306	220,420	100,891	80,587	-35,867	0	1,002,337
Fire Road	1,671,358	318,614	146,388	80,249	-78,941	0	2,137,668
Shrewsbury	2,942,493	568,478	220,961	112,484	-320,601	269	3,524,084
Total	10,470,700	2,303,637	1,085,330	706,582	-732,698	105,497	13,939,048
$/Account							
Haddon Heights	48.22	53.71	69.60	155.73	-42.72	71.75	48.24
Short Hills	65.94	75.04	112.07	214.31	-53.78	104,941.00	67.92
Washington	37.21	36.67	39.21	112.74	-30.81	0.00	36.48
Lakewood	89.73	96.04	106.88	255.83	-39.28	0.00	86.72
Fire Road	61.30	66.27	93.36	182.38	-46.77	0.00	59.76
Shrewsbury	59.68	54.85	58.94	93.66	-83.01	134.50	51.46
Total	58.91	62.75	80.81	161.28	-57.73	15,071.00	56.90
			Percent of Total				
Percent of Total Accounts							
Haddon Heights	72.96%	15.02%	5.69%	1.89%	4.45%	0.01%	100.00%
Short Hills	72.81%	14.66%	5.33%	1.83%	5.37%	0.00%	100.00%
Washington	71.26%	16.39%	6.26%	2.35%	3.74%	0.00%	100.00%
Lakewood	61.35%	19.86%	8.17%	2.73%	7.90%	0.00%	100.00%
Fire Road	76.23%	13.44%	4.38%	1.23%	4.72%	0.00%	100.00%
Shrewsbury	72.00%	15.13%	5.47%	1.75%	5.64%	0.00%	100.00%
Total	72.56%	14.99%	5.48%	1.79%	5.18%	0.00%	100.00%
Percent of Total $							
Haddon Heights	72.92%	16.72%	8.21%	6.09%	-3.94%	0.01%	100.00%
Short Hills	70.68%	16.19%	8.80%	5.79%	-4.25%	2.79%	100.00%
Washington	72.69%	16.48%	6.73%	7.27%	-3.16%	0.00%	100.00%
Lakewood	63.48%	21.99%	10.07%	8.04%	-3.58%	0.00%	100.00%
Fire Road	78.19%	14.90%	6.85%	3.75%	-3.69%	0.00%	100.00%
Shrewsbury	83.50%	16.13%	6.27%	3.19%	-9.10%	0.01%	100.00%
Total	75.12%	16.53%	7.79%	5.07%	-5.26%	0.76%	100.00%

The example shown is for illustration only. Perhaps a better report can be designed.

R6B-4 Accelerate the encoder meter replacement program with respect to inside meters. (Refer to Conclusions C6B-6, C6B-7, and C6B-8.)

The installation of encoder meters in inside locations will provide the ultimate solution to the problems noted in Conclusions C6B-6, C6B-7, and C6B-8.

R6B-5 Initiate calls to all delinquent customers every month after the second month unless the amounts involved are trivial. (Refer to Conclusion C6B-10)

A simple phone call will often produce a prompt payment, and even when the results are not that direct and prompt, the call will usually raise the level of willingness to include the company among the list of creditors that get paid in any given month. Silent creditors are the most easily forgotten when money is limited.

6C Complaints and Inquiries

The Complaints and Inquiries function is divided between two Customer Service Superintendents—one in charge of the Call Center and the other whose title is Customer Service Superintendent/Billing, Collections & Correspondence. The Call Center receives all incoming customer phone calls including most complaints and inquiries, while the CSS/Billing, Collections & Correspondence handles written complaints and all complaints received and referred by the BPU. The CSS/Billing, Collections & Correspondence is also responsible for Customer Service training.

The Call Center

The Call Center has about 20 permanent and 22 temporary employees, with up to approximately 25 working at any one time. They take about 1,500 to 2,500 routine or emergency calls per day, rising occasionally as high as 2,800. The consolidation of the company about a year ago and the change to monthly billing drove the number of calls up, but that is tapering off now.

The Call Center has three supervisors and each supervisor has two work-group leaders. They are open for business from 7:30 AM until midnight to receive calls, and they have another shift of about four people who come on duty at 11:30 PM until 7:00 AM to enter service order completions for work done that day by Field Service. They have a number of shifts starting at 7:30, 8:00, 8:30 AM, etc. with the last call-answering shift starting at 3:30 PM.

One of the functions of the Call Center, and this is primarily the function of the crew that works overnight, is to initiate and/or complete service orders. Service orders can be initiated by the Call Center in response to calls coming from customers relating to leaks or faulty meter readings or whatever; they can also be initiated by the Billing Department, who may notice irregular usages; or they can be initiated by Field Service in response to programmed meter change-outs, etc. In any case, after the work is completed, the service order is "completed" by the Call Center.

When the offices were consolidated into one Call Center, only one of the customer service representatives actually came to Haddon Heights to join the consolidated Call Center. The others transferred to other jobs or left the company, and therefore quite a few replacements were hired. Many of them were hired as temporaries through a temporary agency because it was thought that after a period of time the required number of personnel would decline. The temporaries were generally experienced in customer service and in the use of computers, and in some cases the temporary agency provided them with additional computer training.

Most of the training is on the job. The average person requires about two weeks of on-the-job training. Most of the training is by means of a buddy system, in which the trainee will initially sit beside and listen in on conversations of an experienced Customer Service Representative (CSR), and then switch to handling calls while the experienced CSR listens in and provides guidance. Each new employee also will spend a day in the field actually accompanying a Field Service Representative handling meter reading, meter service, and various other service functions.

In addition they have a Saturday training session once a month which employees are asked to attend on an overtime paid basis. If they are unable to attend, they can watch a film that is made of the session. Each Saturday training session covers a particular topic of interest. There is also a video library covering a variety of topics, and the Information Systems Department provides training in the use of computer software packages such as Microsoft Office. Some cross training is provided. At one point an external training consultant was brought in to provide training in dealing with customers and in team building.

Customer Service Representatives have authority to waive reconnect fees and arrange for cleaning of clothing damaged by rusty water, and can make bill adjustments up to 3,000 gallons and up to $25.00. There is a need for clear guidelines as to the authority of the CSRs. Team leaders and supervisors have no specific dollar limits, but understand that at some point they have to consult with the Superintendent. On occasion the CSS for the Call Center will discuss adjustments with the CSS/Advocate because it is important that various organizations dealing with customers be coordinated on their policies.

The CSS - Call Center gets reports on performance daily and is trying to maintain a standard of 2.5 minutes per call. The goal for after-call work was 1.5 minutes at the

time of our interviews, but the present goal is 30 seconds. They don't currently have any means of automatic call monitoring that would allow them to record calls and tune in on them later, but they plan to get this capability next year. Presently, the CSS or the supervisors can listen in on calls, but they have to listen in while the call is in progress.

For the twelve months ending March 31, 1997, the Call Center answered 380,321 calls and lost 45,271 calls—one call lost for every 8.4 calls answered. The average time per call was 2 minutes 50 seconds, and the average time in queue was 2:15.

Exhibit 6-5
Number of Calls Answered and Calls Lost

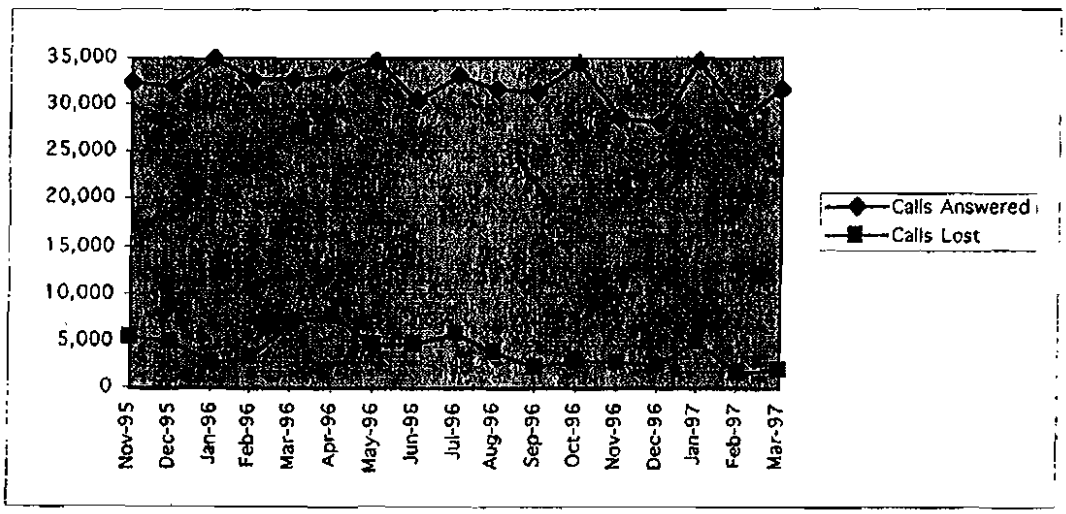
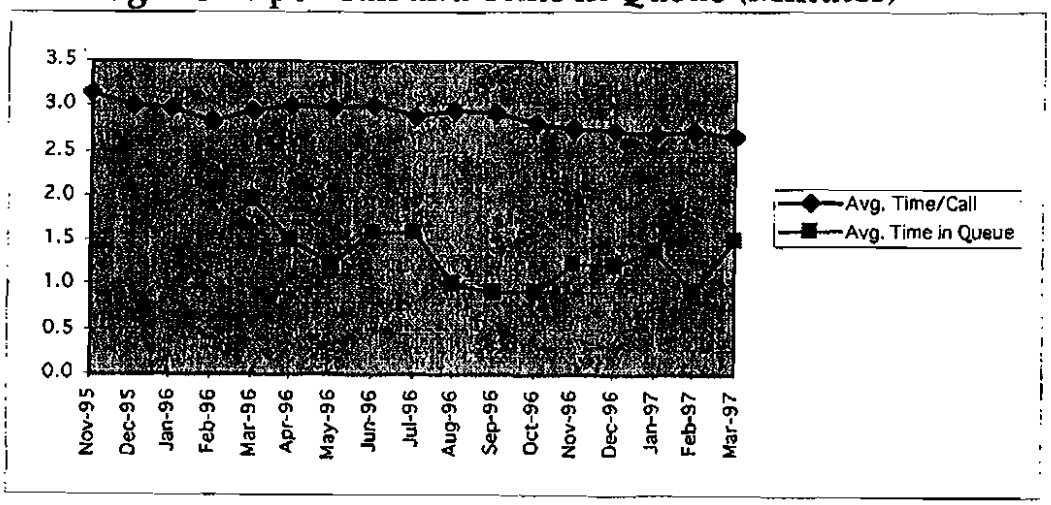


Exhibit 6-6
Average Time per Call and Time in Queue (Minutes)



Exhibits 6-5 and 6-6 show favorable trends. The number of lost calls has declined by about 50% while the average time per call has also declined, more modestly but steadily. The time in queue, however, has declined only slightly and irregularly. As might be expected, both the number of calls lost and the time in queue tend to mimic the number of calls answered, indicating that call volume affects the quality of the performance as perceived by the customers.

The Call Center is attempting to be a "one-stop shop", receiving calls on all topics, handling most of them internally, and referring others to other departments where necessary. They plan to be able to handle virtually all calls except those that involve highly technical water quality issues. At present, they do not have on their computer screen the necessary technical assistance to do this, and they have to refer to papers at their desk.

Their phone system was installed when they consolidated the outlying offices. It is already outdated and there is money in the budget to replace it. They need, for example, to be able to highlight calls that wait over two minutes, and they need more of a Windows interface rather than a DOS interface.

The Customer Services Superintendent/Billing, Collections & Correspondence

The CSS/Billing, Collections & Correspondence was put in this position in part to insure consistency of policies. He has three primary functions. (1) He is on-line through E-Mail with the BPU for purposes of handling complaints that come in to the BPU directly and are passed on to the company. (2) He also handles written correspondence with customers and with others, such as newspapers and politicians, and letters that come directly to the President of the Company. (3) He is responsible for a newly-instituted Customer Service training function. He also works extensively with the Manager of Community Relations - Employee and Customer Communications (within the Customer Relations Department) and also coordinates with the other Manager of Community Relations for external relations.

He has three people reporting to him, and those three also help out on the telephones and on other projects.

Regarding the correspondence function, the CSS/Billing, Collections & Correspondence has an on-going E-Mail communication with the BPU, which is a

system established in approximately July of 1996. Only calls to the BPU get onto the E-Mail system. Letters to the BPU are faxed to NJAWC. Letters or calls that come directly into the company are not communicated to the BPU at all.

The CSS/Billing, Collections & Correspondence is also responsible for Customer Service Training function, administered by a Supervisor of Training. A primary training program is a Saturday training session once a month that typically lasts three hours. There is no special formal training for new employees. They use a buddy system, as in the Call Center. In addition, there is a program for cross-training in which everyone in Customer Service will theoretically be trained to provide back up in every other area. The trainer also occasionally does individual coaching.

The CSS/Billing, Collections & Correspondence produces two simple management reports. One is a monthly summary of administrative complaints received via the BPU called "BPU Administrative Complaints." The second report is a summary of what goes into the AS/400 customer information system records for each customer, and that basically is intended to flag frequent complainers.

Regarding feedback, there are no systems for insuring that improvements follow from complaints, but when the CSS/Billing, Collections & Correspondence sees a pattern he will investigate.

Findings and Conclusions
(Complaints and Inquiries)

C6C-1 The reporting of complaints received is not as usefully detailed as it could be.

While there are ad hoc tallies of complaints within the Customer Service function from time to time, the only formal and regular reports on complaints are:

1. A quarterly report produced by the BPU that tallies complaints received by the BPU in a few very general categories (e.g., Collections).
2. A BPU report tallying, for each water utility, the total number of written complaints received by the BPU by month, unclassified, and

the annual complaints per 50,000 customers (NJAWC had fewer than the average in 1995).

3. A very brief monthly internal report that tallies total complaints classified only according to where and how received—BPU written, BPU verbal, or Company—with comparison to prior periods.

The generality of the BPU reports is not surprising, because the BPU's purpose in tallying complaints is to assess overall performance only, not to develop improvement strategies for utilities. But it is surprising that the Company does not at least produce and distribute to management a formal tally by type of complaint, and preferably in a level of detail that would provide some guidance for quality improvement.

C6C-2 There needs to be an improved program for responding to patterns of complaints to ensure that corrective action is taken where appropriate.

Tallying and reporting complaints is not always enough. Although an alert management can often be counted on to institute corrective action without prodding, that does not always happen unless someone plants the suggestion.

C6C-3 Customers have not been formally surveyed on a system-wide basis to determine their level of satisfaction and to identify areas for improvement.

Because of the recent consolidation of many Company functions, this is the time to conduct a system-wide customer satisfaction survey.

C6C-4 More formal training of Customer Service Representatives would be helpful, especially since a large number of them are or recently were new employees.

When the various divisional call centers were consolidated into one call center at Haddon Heights, only one of the outlying Customer Service Representatives moved to Haddon Heights, so many new employees and temporary employees were added. Training, however, is primarily on-the-job, using a buddy system for demonstration followed by close supervision. This is a good technique, but should be supplemented by more formal training. There is a videotape library on various topics for

employee use and there are voluntary paid Saturday sessions once a month that deal with a particular topic for all employees, not just new employees.

C6C-5 **Customer Services training is not a part of a general Company training program and is not coordinated or significantly supported by the Human Resources Department.**

There is no general Company training program and the Human Resources Department does not get intimately involved in training.

Recommendations
(Complaints and Inquiries)

R6C-1 **Tally complaints, commendations, suggestions, and other quality-related comments, classified in some useful level of detail for providing quality improvement guidance, and distribute the tallies to management quarterly with analytical comments. (Refer to Conclusion C6C-1)**

The approximately 80 formal complaints per quarter can provide valuable customer feedback if they are meaningfully analyzed and reported. In addition, there are probably many more suggestions and other comments that could and should be reported and studied. The reporting should follow a classification scheme that meaningfully characterizes the complaints each quarter, even if subclassifications must be developed and abandoned from time to time as the pattern of complaints changes.

R6C-2 **Adopt, as a feature of periodic general management meetings, a brief quarterly discussion of the useful information that can be drawn from the latest batch of customer complaints, and the corrective responses that should be taken. (Refer to Conclusion C6C-2)**

Customer Relations, as the expert on customer complaints, can in some cases provide useful interpretive information that goes beyond the written report.

R6C-3 **Conduct a customer satisfaction survey to determine the level of customer satisfaction in a variety of areas, to explore the strengths and weaknesses of the Company's customer relations, and to identify areas for improvement. (Refer to Conclusion C6C-3)**

The survey should be designed and conducted in conformance with professional surveying standards of planning, objectivity, and accuracy.

R6C-4 **Institute an expanded formal training program for new Customer Service Representatives to supplement the existing program of call monitoring and on-the-job training. As a part of a general improvement of employee training, also develop a strong linkage, through organization structure or otherwise, between Customer Services training and other Company training programs. (Refer to Conclusions C6C-4 and C6C-5)**

Because new employees are hired singly or in small groups, it may be impractical to conduct a live training course whenever necessary. Alternatives, such as full new-employee training course by in-house videotape with workbooks might work better, or there might be video-taped training programs commercially available for at least the call center and perhaps other Customer Relations functions. The results will be improved performance of new employees and reduced need for one-on-one "buddy system" training.

A consolidation of training programs, or at least cooperation among training programs, can provide many benefits, including training of trainers, an emphasis on professionalism, better facilities and other resources, and better coordination of topics and methods.

6D Conservation

The Community Relations Manager for Employee and Customer Communications currently conducts the only significant broad-scale effort to reach customers with a conservation message or program. She prepares bill inserts on conservation and produces leak detection kits, which are primarily information packages.

The Company works with customers with high bill complaints to inform them of methods for conservation. Recent past conservation efforts have included participation with garden clubs, etc., to promote xeroscaping and outdoor water usage conservation. Company efforts to control lost or unaccounted-for water are also supportive of conservation efforts, and are regarded as probably more fruitful than conservation programs directed toward the customers.

A Pilot Conservation Study

In 1993, a pilot study, "New Jersey American Water Company Water Conservation Pilot Study," was conducted by Economic and Engineering Services, Inc. to determine the effectiveness and feasibility of certain indoor water conservation measures. The measures tested were low-flow shower heads, two types of toilet retrofit devices, and faucet aerators. The goals of the study were to:

- Determine water savings associated with the water conservation devices by performing a statistical billing analysis.
- Determine customers' satisfaction and the penetration rates of the conservation devices.
- Evaluate the merits of a customer-installed program compared to a utility-installed program.

On a cost/benefit basis, the customer-installed program was most successful, but the results of the pilot indicated that were the program implemented for all residential customers, the water savings would amount to only 0.93 percent of annual residential consumption, or 0.46 percent of total annual consumption. The cost of the customer-installed pilot was 80¢ per thousand gallons saved, in 1992 dollars.

Factoring Conservation into Planning Studies

The somewhat unfavorable results of the 1993 study have been factored into subsequent planning studies, in the sense that less is expected of indoor conservation programs than outdoor and loss control programs.

A demand study done in 1987 in anticipation of the Tri-County Project recognized some impact of plumbing retrofits, etc.

A water conservation plan submitted to the New Jersey Department of Environmental Protection is updated periodically, but the last update, a 73-page document, was in 1995. It focuses primarily on considerations of efficient supply and internal usage, and control of leakage and losses. A 3½ page section on Demand Management, however, describes a variety of brochures and promotional materials used by the company to encourage conservation, and refers to the receipt, by New Jersey-American, of the "Camel Award" in 1991 from the American Water Works Association for its conservation information programs.

Currently, no one is responsible for managing conservation efforts at the consumer level, especially those relating to consumption instead of losses, and the auditors did not find evidence of a substantial current program for reducing consumption.

Findings and Conclusions
(Conservation)

C6D-1 **While we find no substantial deficiency in the conservation program, a greater effort to reach the public through news releases and other means would be helpful.**

Promoting conservation by customers does not appear to enjoy a high priority in the attention of the company.

C6D-2 **There is no one individual who is formally responsible for conservation efforts.**

As a consequence, conservation by customers is not promoted consistently as an ongoing program.

Recommendations
(Conservation)

R6D-1 **Seek out new opportunities for promoting conservation and be alert for opportunities (such as water shortages or merely a decline in reservoir levels) to publicize the need for conservation through press releases or just a phone call to a newspaper or TV station. Appoint an individual to develop, promote, and coordinate all water conservation efforts, or at least all customer-use conservation efforts, as a part of a related job. (Refer to Conclusions C6D-1 and C6D-2.)**

Collaboration with volunteer environmental advocate groups, for example, might lead to new approaches to the public consciousness about water conservation.

Assigning the responsibility for conservation efforts to one person makes possible a more consistent, effective program. The individual should be personally supportive of conservation as a matter of policy, should exercise some degree of authority within the company, and should preferably be in a position to incorporate conservation-promoting activities into his or her regular job.

6E Marketing

While New Jersey-American does not have an active program of marketing to individual customers, it does market routinely to communities in support of its acquisition strategy. The Company does not generally pursue individual large customers that are remote from its existing service areas, and does not have an on-going marketing effort to attract or retain large customers other than what would be considered normal efforts to maintain good customer relations.

The focus of the marketing efforts is to support the Company's strategy of acquiring selected municipal systems or obtaining operation and maintenance (O&M) contracts to serve communities. The O&M contracts are, in general, less attractive than acquisitions, but may sometimes lead to future acquisition opportunities.

There is not, at present, a written marketing plan, and critical success factors for marketing have not been identified. While no organizational component and no individual title includes the word "marketing," the individual most directly responsible for marketing in support of acquisitions is the Director - Business Development. Marketing is also an activity shared by the President, the Vice Presidents, and Operating Center Managers.

Marketing activities include:

- Participation in conferences for municipal officials, both to obtain information on potential acquisition opportunities and to promote New Jersey-American as a supplier of water.
- Presentations to City Councils and other municipal bodies, particularly when a municipality is considering a sale or O&M contract for its water system.
- Making presentations to community organizations with a business, civic, or environmental orientation.
- Watching for legal notices in newspapers and following up with direct contacts.

The company works with regional development agencies and other community organizations to keep abreast of needs for future service extensions, such as for

planned industrial parks. The Director - Business Development also keeps the Director - Governmental Affairs apprised of what is going on relating to acquisitions.

Advertising has been used in publications that target municipal officials and, in at least one case, business leaders. Advertising to the general public has not been used.

New Jersey-American's major competitors for acquisitions or O&M contracts are:

- Elizabethtown Water Company
- United Water Resources
- U.S. Water (O&M contracts only)
- Middlesex Water Company
- Consumers Water of New Jersey.

New Jersey-American's competitive strengths include its state-wide presence, its economies of scale, and its reputation as a safe, reliable supplier of high quality water. Its image as a relatively high-cost supplier is a weakness that is addressed by stressing the high water quality that is the reason for the high cost.

Traditional marketing efforts to capture large industrial customers were not regarded as likely to be useful, because there was no economic incentive to entice a customer. Prices were to increase. The public-policy motivation for the plant was to reverse the depletion of the aquifer that had been caused by increasing extraction from wells, and that threatened the aquifer with encroachment by saline contamination. The primary incentive to individual communities was pressure from the New Jersey Department of Environmental Protection. Marketing efforts were therefore designed to emphasize the environmental motivation and to offset the resistance to increasing prices.

Findings and Conclusions
(Marketing)

C6E-1 The Company does not have a traditional marketing function directed at capturing or retaining large individual customers or at increasing water usage by existing customers, and probably does not need one.

Efforts to promote increased water usage would be undesirable from an environmental standpoint, even if designed to increase only off-peak usage. An argument could be made that increased off-peak usage could reduce average costs and therefore rates, but the environmental impact would still be negative. A marketing program to attract and retain large customers near the boundaries of a service territory might be worthwhile, but it is not clear that it is necessary or that it would be cost effective.

C6E-2 The Company's marketing efforts in support of its acquisition strategy are not well organized.

There is no one clearly in charge of marketing. Although the Director - Business Development has been identified as the individual with the greatest direct responsibility, various individuals play a role and there is no formal coordination of marketing efforts. While marketing types of activities are conducted, there is not a recognized marketing function in the Company.

C6E-3 There is no marketing plan.

Every function needs a plan, and marketing needs to be recognized as a function of some significance, because it directly supports one of the major elements of the corporate strategy—acquisitions. This need is addressed in Recommendation R1D-1 in Chapter 1.

Recommendations
(Marketing)

R6E-1 Assign the responsibility for acquisition-oriented marketing to one person. (Refer to Conclusion C6E-2.)

The nature of the responsibility might be managerial or merely coordinating. If marketing is to remain focused on personal contact and presentations, then a senior manager, such as the Director - Business Development, might be a logical choice. If it is to focus on mass communications, then a communications specialist might be a good choice. In any case, the purpose of assigning the responsibility is not to restrict involvement by other people, but to ensure that a coordinated and sufficiently-comprehensive marketing program exists.

6F Service Theft

Neither the Customer Relations Department nor any other department has overall responsibility for the detection of service theft, but Customer Relations and Field Services are best equipped for the task. Customer Relations is responsible for billing records and shut-off records, while Field Services (a part of Operations) is responsible for meter reading and service, and field contact with customers.

Service theft is not believed to be a serious problem for the Company, although there are no substantial analyses to document this.

Service theft most often occurs after service has been shut off. Unauthorized use of fire hydrants also occurs. Programs to control theft are primarily limited to normal collection efforts and general observation by Company personnel on the scene during fire hydrant maintenance, etc.

Service theft is not estimated on a regular basis, although some known theft, along with uncollectible bills, shows up in revenue write-off figures.

Findings and Conclusions
(Service Theft)

C6F-1 **There is no systematic process for detecting service theft.**

Field Service is normally notified, however, if someone discovers probable service theft through billing records.

C6F-2 **Service theft is not estimated on a regular basis.**

While the theft problem may not be serious, it is not possible to develop an effective control strategy unless the magnitude of the problem is understood by geographic area and other service segments.

Recommendations
(Service Theft)

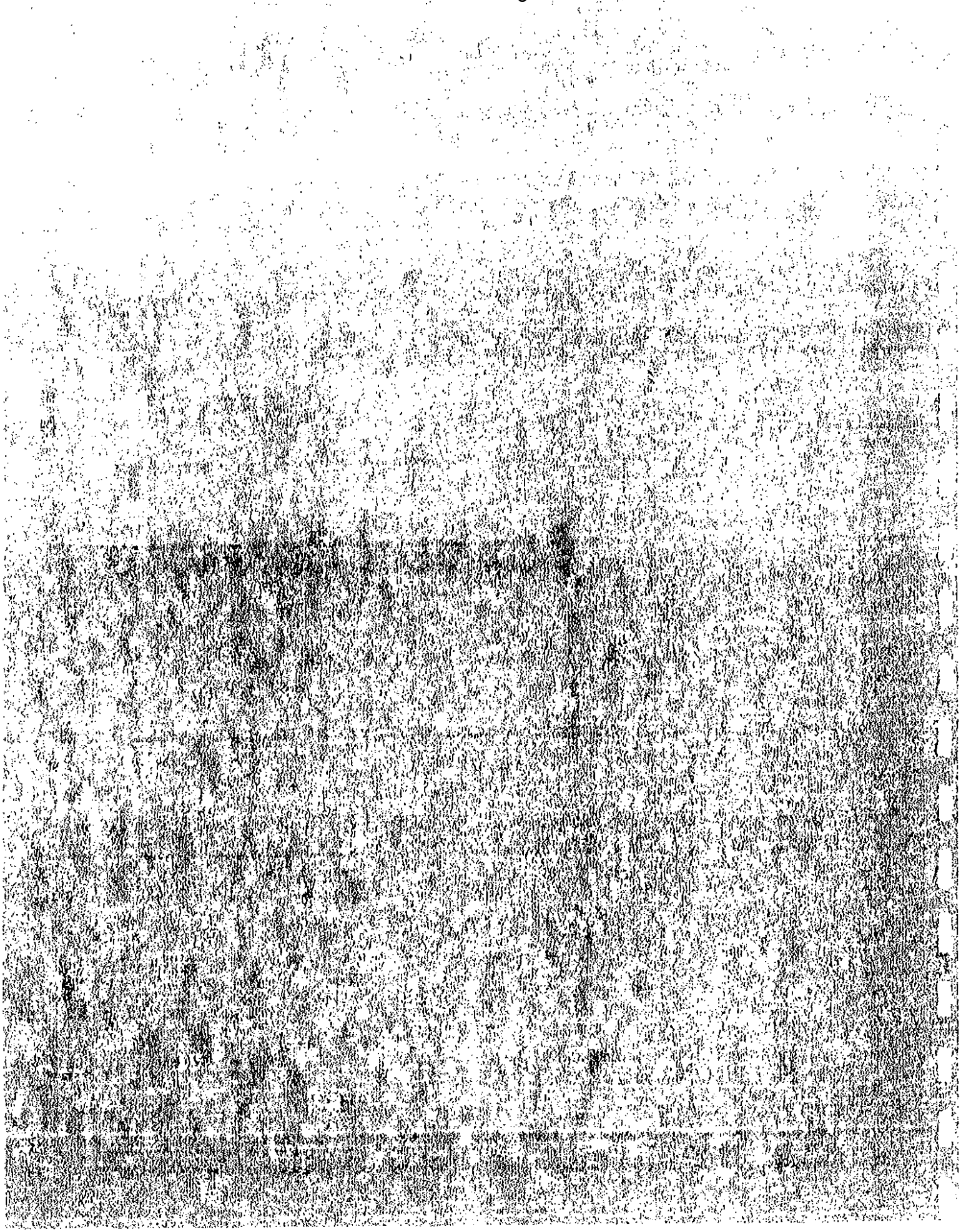
R6F-1 **Develop a program to detect and control theft of service. Assess the feasibility of instituting a systematic, and preferably at least semi-automated, process for detecting service theft through billing records. Also develop a method and a periodic schedule for estimating service theft, differentiated geographically and in other ways that are both useful and feasible. (Refer to Conclusions C6F-1 and C6F-2.)**

A detection program could include training of meter readers and meter installers to look for meter bypasses, meter tampering, etc. From the standpoint of billing records, an abrupt and sustained reduction in water use to below-normal levels, or continued disconnection of service (on the records) should prompt a physical check by Field Service. In addition to the recovery of revenue and/or the prevention of the loss of water, another benefit might be enhanced respect among customers for the Company's revenue collection capabilities, and therefore a slightly increased tendency to pay water bills.

Potential classifications for estimating service theft might include type of account, collection status and history, and inside/outside location of meter. A better understanding of the problem will contribute to a better solution.

Chapter 7

Support Services



Chapter 7
Support Services

The importance of support services is sometimes underestimated because their influence on the achievement of the utility's mission is generally indirect. But while the influence may be indirect it is often pervasive, because support services typically affect the operating effectiveness and efficiency of many functional areas.

The following support services are examined:

A. Insurance and Claims
B. Legal
C. Facilities Management
D. Materials Management
E. Transportation
F. Real Estate and Land Management
G. Computer Systems and Services
H. Records Management

7A Insurance and Claims

Insurance and Claims, often known as Risk Management, is charged with evaluating the utility's risks and with selecting and administering the most appropriate form of protection, and therefore has a broader scope than just insurance management.

The AWS Service Company is responsible for obtaining insurance coverage, while New Jersey-American handles claims. Loss prevention responsibilities are shared. Our review focuses on evaluating management policies and practices, rather than specific insurance coverages.

Exhibit 7-1 lists the Company's insurance coverages.

Evaluation and Selection of Carriers

While there are no documented procedures for evaluating competitive bids for insurance, insurance companies are evaluated based on:

- Review of the carrier's credit rating and A.M. Best rating (A or better).
- Price and economic ability to service the account
- Types of services provided and an assessment of their performance on those services.

Warren Welsh & Thomson, a brokerage firm, assists in the evaluation of the bids and provisions, and the selection of a carrier.

Policies on Insurance

The Company assumes a part of various risks through a deductible amount. The level of the deductible is designed to achieve the lowest possible cost associated with risk transfer and to retain normal losses, while providing coverage for catastrophic losses. The assumption of a deductible reduces the overall cost, while providing a more tangible incentive to the Company to control losses.

Exhibit 7-1
Insurance Coverages

	Limit	Deductible
Aetna Casualty and Surety Co.		
• Property Insurance - All risk property insurance including fire, extended coverage, vandalism, etc. on all real and personal property.	$100 million	$1,000
• Property Insurance - All risk builders risk insurance	$25 million	$500
• Employee Personal Property Insurance	$5,000	$0
• Workers Compensation Insurance - State of NJ	Statutory	
• Comprehensive General Liability Insurance, including products liability insurance	$1 mill. occurrence, $12 mill. aggregate	$1 million
• Automobile Liability Insurance	$1 million	$300,000
• Automobile Physical Damage Insurance	No Limit	$500/loss
Farmington Casualty Co. (Aetna)		
• First Class Mail Insurance	$500,000	$0
Hartford Steam Boiler Inspection & Insurance Co.		
• Boiler and Machinery Insurance	$2 million	$5,000 motors, $1,000 all other
Lloyd's and Co.		
• Excess General & Automobile Liability Insurance	*	$1 million
Insurance Company of North America		
• Aircraft Non-Ownership Liability	$10 million	$0
• Travel Accident Insurance	**	**
Federal Insurance Co.		
• Directors and Officers Liability Insurance	$25 million	$1 million
• Fiduciary Liability Insurance	$25 million	$10,000
• Comprehensive Crime Bond	$5 million	$10,000
Gulf Insurance Co.		
• Excess Directors and Officers Liability Insurance	$25 million in excess of $25 mill.	Primary
National Union Fire Insurance Co.		
• Kidnap, Ransom, and Extortion Coverage	$10 million	$0
Royal Indemnification Co. & Westchester Fire Ins. Co.		
• Excess Flood Insurance	$10 million in excess of $10 mill., $10 mill. aggregate	Primary

* Lloyd's & British covers the excess over Aetna from $1 million to $50 million, and Starr Excess of Bermuda covers from $50 million to $100 million.

** Travel accident insurance provides a fixed payment for accidental death or dismemberment. The principal sum depends upon the class of the employee—from $500,000 for certain officers and directors to $250,000 for spouses of employees who are paid less than $40,001 annually.

The AWS insurance policies are of two types:

- Guaranteed-cost premiums, in which the premiums remain the same for the term of the policy regardless of the amount of losses paid. This is generally the coverage provided when exposure is low in frequency but potentially large.
- Loss-responsive plan, in which the premiums vary with the amount of losses the insurer pays. This essentially cost-plus policy is selected when exposures are predictably frequent and not very severe. Workers compensation, automobile, and general liability fall under this type of coverage.

  The loss-responsive plan selected by the AWS is retrospectively rated, in which the level of claims and expenses are predicted based on recent experience, and premiums are adjusted annually based on both claims and expenses paid. It includes a premium stabilization agreement to minimize back-and-forth payment of annual adjustments. By this agreement, actual settlements, while calculated annually, are not paid until the end of a 66-month period. Credits earn interest.

The potential for loss is evaluated on an on-going basis, and limits are reviewed and adjusted accordingly based on the changing insured assets and exposures of the company. Claims history is reviewed for indications of increases of frequency or severity.

Claims Handling Process

New Jersey-American's Loss Control Director is responsible for handling claims, including:

- Claims management
- Claims training
- Workers' compensation
- In-house investigation of motor vehicle claims and seeking recovery.
- Recovery of damages to company property by contractors and third parties

Workers compensation and automobile liability claims are normally reported by telephone to the insurance carrier by operating location supervisors. Either supervisors or the Loss Control Department reports general liability and property damage claims by telephone. The Loss Control Department is advised of all claims, and reviews claims for severity of loss.

Upon being notified of a claim, the carrier assigns a claims representative to the case, who administrates the claims process. All litigation matters are discussed with the Director of Loss Control and are approved by the Legal Department, however, prior to settlement.

In 1990, the AWS raised the limit for the local settlement of small property damage claims, from $300 to $1,000, in accordance with a recommendation of the prior management audit. Claims for bodily injury, automobile liability, and property damage in excess of $1,000 are processed through normal channels by the insurance carrier.

Claims History

As shown numerically in Exhibit 7-2 and graphically in Exhibit 7-3, there has been a general decline in the cost of claims over the past three years—or more particularly over the past two years—for New Jersey-American as a whole. It was due to a decline in both the number of claims and their average cost. This applies to all three major categories: general liability insurance, workers compensation, and automobile insurance.

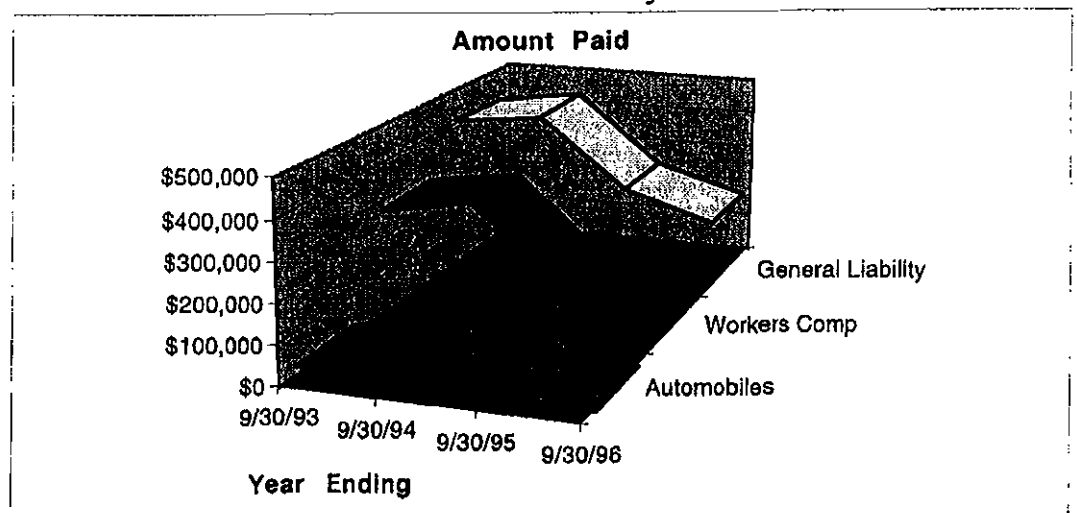
Exhibit 7-2
Claims History Statistics

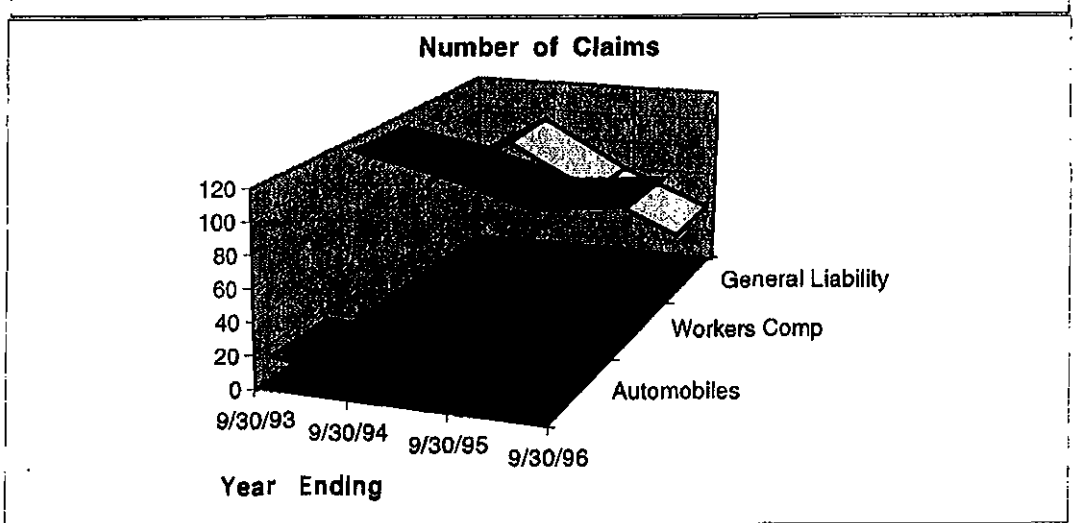
	Number of Claims			
Year Ending:	9/30/93	9/30/94	9/30/95	9/30/96
Automobiles	14	9	6	6
Workers Comp	112	101	85	91
General Liability	65	97	67	43

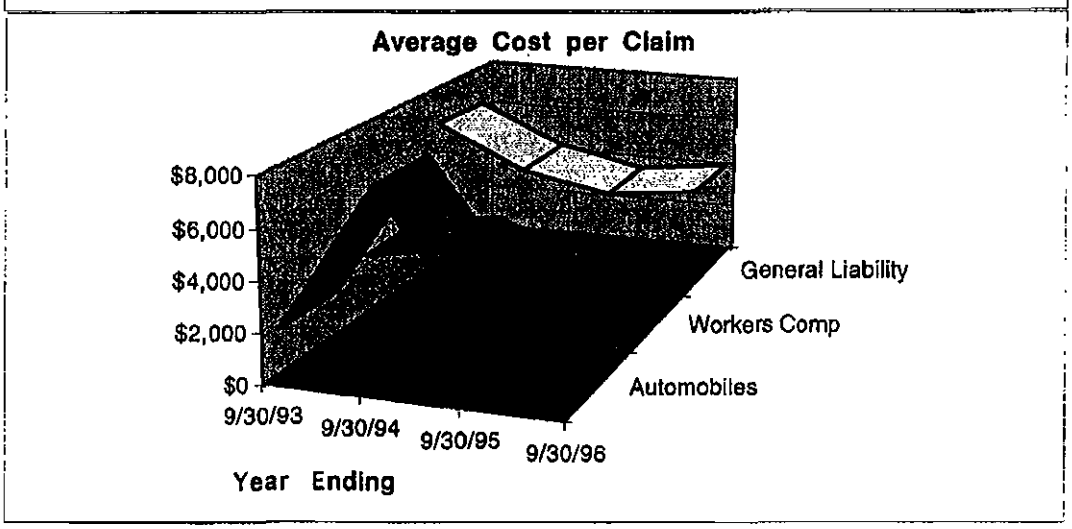
	Amount Paid			
Year Ending:	9/30/93	9/30/94	9/30/95	9/30/96
Automobiles	$24,703	$68,907	$16,022	$4,675
Workers Comp	$280,692	$321,223	$122,910	$169,530
General Liability	$413,370	$443,173	$257,253	$185,090

	Average Cost/Claim			
Year Ending:	9/30/93	9/30/94	9/30/95	9/30/96
Automobiles	$1,765	$7,656	$2,670	$779
Workers Comp	$2,506	$3,180	$1,446	$1,863
General Liability	$6,360	$4,569	$3,840	$4,304

Exhibit 7-3
Claims History







An analysis of the claims history within each operating center does not reveal reliable trends because the relatively small number of claims in each operating center makes it difficult to distinguish meaningful differences from random variations. For example, the apparent large rise in the average cost per claim for automobile insurance shown in the second year of the bottom graph of Exhibit 7-3 can be traced to a jump in Haddon Heights, but further analysis shows that the Haddon Heights data consists of only two claims totaling about $40,000, so a single large claim might have been responsible, which would indicate a random effect rather than a meaningful change.

Loss Control Programs

Loss control programs administered by NJAWC include:

- Weekly tailgate talks
- Confined space entry programs
- Acquisition of self-directed software programs on safety for employee use
- Video library for support
- Policies and procedures relating to asbestos, cement pipe, confined space entry, and police accident reports.

In addition, the Company contracts out several loss control programs:

- Defensive driving course every three years for every person who drives company cars.
- First aid and CPR
- Electrical safety.

There is a safety section in each bi-monthly issue of the employee publication, and low-cost incentives, such as letters of commendation and awards of special flashlights, are offered for special performance.

Related Responsibilities of the Loss Control Director

The Loss Control Director is also responsible for other loss control matters:

- Litigation relating to personal injury, property damage, or liability
- Regulatory compliance, specifically relating to OSHA
- Customer liaison work

- One-call system
- All requests for bonds, for street opening, performance, etc.
- Environmental complaints
- Environmental hygienics.

Findings and Conclusions
(Insurance and Claims)

C7A-1 **New Jersey-American appears to benefit from its inclusion under the coverages negotiated by the Service Company.**

While the Company could certainly negotiate its own coverages, the economies of scale enjoyed by the Service Company make it worthwhile to go with the AWS programs.

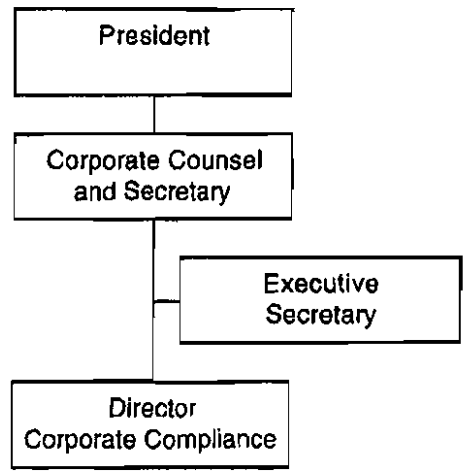
Recommendations
(Insurance and Claims)

There are no recommendations for this section.

7B Legal

The legal function is performed by the Office of the Corporate Counsel, which reports to the President and is staffed by two attorneys and a secretary, as shown in Exhibit 7-4.

Exhibit 7-4
Organization Structure - Corporate Counsel



In-House Work Assignments

The Corporate Counsel generally handles, personally, matters involving acquisitions and some human resources matters, including employment and labor issues. The Director - Corporate Compliance generally handles matters involving environmental compliance, permitting, real estate, and contractor relations. Lobbying and advice to management are also handled by inside counsel. More specifically, the in-house work assignments break out as in Exhibit 7-5:

Exhibit 7-5
In-House Legal Work Assignments

Subject Matter	General Counsel	Director - Corporate Compliance
General Utility and Regulatory Issues	X	X
Acquisition and Privatization Initiatives	X	X
Contract Review and Drafting	X	X
Law Firm Management	X	X
Employment and Human Resource Issues	X	
Financings	X	
Government Relations Issues	X	
Insurance Issues	X	
Corporate Secretary Issues	X	
Environmental Issues		X
Real Estate Issues and Property Sales		X
Construction/Contractor Issues		X
Permitting		X

Work Assigned to External Law Firms

Work that is generally assigned to outside counsel includes rate cases, labor arbitration, most employment and some financing matters. Four law firms account for most of the cost of outside legal work for these and other matters (the costs in Exhibit 7-6 were projected to full year 1996 in September, 1996):

Exhibit 7-6
External Legal Assignments

Law Firm	Projected 1996 Cost	Normally Used For
Davis Reberkenny & Abromowitz	$268,000	Local Government Matters (Planning & Zoning, etc.) Rate Case Acquisitions Real Estate Issues
Dechert Price & Rhoads	$152,000	Tax Environmental & Other NJDEP Matters General Corporate Financings
Morgan Lewis & Bockius	$99,000	Labor/Employment EEOC/Affirmative Action
Pitney Hardin Kipp & Szuch	$39,000	Labor/Employment Real Estate
Others	$22,000	
Total	$580,000	

Beyond citing specific categories of work, the rationale for inside/outside assignments does not seem to follow any clear guiding principles, but there are some considerations that influence the assignments. "Big-chunk work" (large amounts of work in short periods of time) is typically given to outside counsel because the Company lacks sufficient staff to handle it. Work requiring local expertise such as local planning and zoning is given to outside local counsel. Litigation work is assigned to outside counsel because the Company doesn't have in-house expertise in that area. The chosen specialties of the two lawyers also influences the assignment decisions.

But the assignment of work to outside counsel is now controlled by the Corporate Counsel, which is an improvement over previous practices under which departmental managers would sometimes initiate calls to outside attorneys.

Vision

The department does not have a strategic plan that addresses the changes facing the Company's legal function in the coming years. The likely effects of deregulation on the character of the work of the Corporate Counsel are not clearly identified, although it was pointed out that the office will need to increase its technological capabilities for information management, etc. In a follow-up telephone interview, additional information was provided on anticipated demands on the department, including that there would likely be increased work on acquisitions, competition for acquisitions, deregulation, compliance, and employment issues, although there is no plan articulating how the department might prepare to meet these demands. There needs to be a written strategic plan that will outline the Legal Department's blueprint for managing the changing workload facing this function.

Procedures

The Code of Ethics of the American Water System specifies ethical standards of conduct, including prohibitions against conflicts of interest involving suppliers. The Code is required to be distributed periodically to all employees, and all personnel are required to report any infractions or reasonable belief of an infraction. Officers and senior employees are required to certify annually that they have no knowledge of any material violations not reported previously. As a further protection against

Company personnel improperly directing business toward a supplier, all supply contracts require the solicitation of three bids from prequalified suppliers.

The Corporate Counsel is largely independent of the legal operation at the Service Company. The Service Company does not set guidelines for the Corporate Counsel's operation or get involved in legal actions involving NJAWC. The Corporate Counsel will on occasion call a Service Company attorney for consultation, however.

The Corporate Counsel also serves as Corporate Secretary. This responsibility requires relatively little time, consisting mainly of minutes, agendas, and preparation for Board meetings.

Findings and Conclusions
(Legal)

C7B-1 There is no long-range or intermediate-range plan for the legal function.

There does not appear to be a clear vision of the changes facing the legal function as a result of deregulation or other influences, which makes it difficult to develop a plan for addressing them. This problem is addressed in Recommendation R1D-1 in Chapter 1.

C7B-2 There is no clear policy controlling the assignment of legal work to inside vs. outside counsel.

There is a division of work that can be described by enumerating what is usually done inside and what is usually done outside, and there are some principles for assigning work, but there is no clear policy. When decisions are made with no documented reason, the existence of several independent and unprioritized criteria allows them to be too easily rationalized.

Recommendations
(Legal)

R7B-1 **Prepare written guidelines for allocating work to inside or outside counsel, with a rationale for them. (Refer to Conclusion C7B-2.)**

The guidelines must be flexible, of course, and subject to change, but they should not be arbitrary. The rationale should clarify the reasoning behind the guidelines and discuss to what extent they are based on considerations of capabilities and preferences of individuals, need for occasional specialized expertise, workload and staffing levels, or other considerations. The results might indicate a need for strengthening certain in-house capabilities or shifting some work in or out.

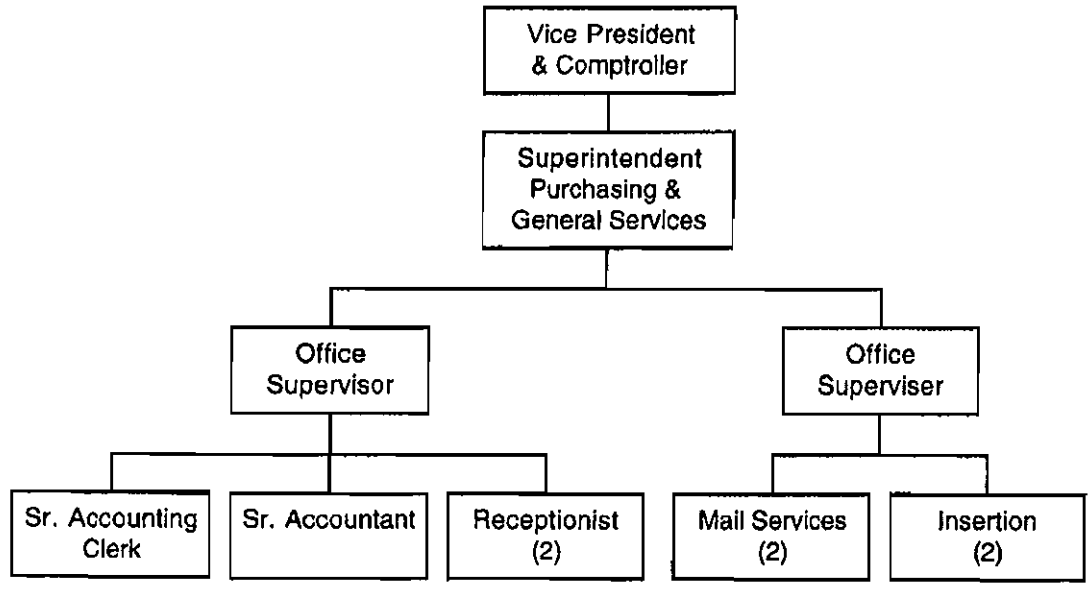
7C Facilities Management

Facilities Management consists of building services (such as building and grounds maintenance, renovations and office moves, and janitorial services) and office services (such as office supplies, copy services, telephone, and security).

The facilities management function is currently being centralized, both functionally, in terms of combining types of services, and geographically, in terms of serving all operating centers. That process is not yet complete, however, and space limitations at the headquarters location are becoming a problem. The organization primarily responsible for Facilities Management is the Purchasing and General Services Department, which was formed in July, 1996, reporting to the Vice President and Comptroller. That same organization, located at Company headquarters, also has partial responsibility for purchasing and materials management, as discussed in the next section.

Exhibit 7-7 shows the organization structure.

Exhibit 7-7
Organization Structure - Purchasing and General Services



Prior to July 1996, facilities management was essentially the responsibility of Operations, and Operations is still responsible for many facilities management functions. At the present time, Purchasing and General Services handles the contracting for the facilities management services, such as lawn care and janitorial services, but Operations is responsible for managing them at most locations. There has been an effort to centralize the various services from the various locations and to develop standard bid packages. Janitorial services, for example, are still broken out and handled separately by operating center, but these will be centralized as well. There are also distinctions by type of facility. Operations remains directly responsible for facilities management in maintenance and production facilities, while Purchasing and General Services is responsible for office buildings.

The responsibilities within the Purchasing and General Services Department were in the process of reassignment at the time of the interviews, and the facilities management responsibilities were being shared by the two Office Supervisors, although one was slated for concentration on facilities management while the other was to concentrate on purchasing. The facilities management functions performed internally presently include:

- Maintaining an E-mail address and data base for reporting building and grounds maintenance problems and checking for recurring problems, and supervising Building and grounds maintenance for headquarters
- Supervising office moves and furniture movement
- Setting up meeting rooms with audio-visual support, chairs, etc.
- Mail room (including sorting, delivery, etc.)
- Logging (but not opening) incoming mail and packages for both headquarters and Haddon Heights
- Special mailings
- Bill inserting
- Staffing the reception desk
- Telephone support services
- Answering telephone calls to the general headquarters number and those automatically diverted from operating centers
- Bulk copying and maintaining copy machine supplies
- Maintaining coffee supplies (stocking individual stations)
- Recharging postage meters

- Maintaining stocks of office supplies, including stationery, AS/400 supplies, PC supplies, copy paper, stock paper, bill paper
- Computer support services.

In addition, Purchasing and General Services provides the following services through outside contractors:

- Lawn maintenance
- Janitorial services
- Exterminating
- HVAC maintenance
- Plumbing
- Locksmithing
- Electrical.

The 1996 budget of $451,403 was essentially carried over unchanged from the prior year's budget under the Operations Department, with adjustments for one-time items, the addition of $154,000 for telephone service costs, and a few other minor differences.

Because the facilities management function has only recently been centralized and is still clarifying its role, there does not yet exist a documented policy governing the use of outside building and office services contractors, except those general policies that govern the ethics of supplier relationships as discussed in Section 7B: Legal.

Potential contractors are identified from several sources for purposes of soliciting their interest. A list is maintained of past contractors, and the telephone directory, the Thomas Registry, and the Chamber of Commerce directory are consulted. Formal Invitations for Bids are sent out for major contracts, and three or four quotes are sought for minor ones.

Cost control practices consist of the basics: the formal budget process and the use of competitive quotes, plus managerial oversight and review. Contractors are evaluated on the basis of schedules met and quality of work performed. Records of the evaluations are kept on file.

Findings and Conclusions
(Facilities Management)

C7C-1 **The consolidation of facilities management functions improves efficiency and professionalism, and further consolidation would be beneficial.**

Facilities management requires special experience and resources, and is more efficiently and effectively provided by a full-time facilities management staff than as an occasional activity of a wide variety of employees.

C7C-2 **The facilities management function is still not fully distinguished from purchasing and materials management.**

The personnel are still in the process of trading functions, and the definitions of the various functions are not clearly defined.

C7C-3 **There does not yet exist a documented policy governing the use of outside building and office services contractors, except those that govern the ethics of supplier relationships.**

C7C-4 **Because of the recent consolidation and move of functions to headquarters, there may be a need for a larger headquarters facility.**

Some functions, such as Fleet and Materials Management, need to be moved to the headquarters location when space becomes available.

Recommendations
(Facilities Management)

R7C-1 **Define clearly, in writing, the separate functions of building and grounds services, office services, purchasing, and materials management, and then continue to assign personnel accordingly. (Refer to Conclusion C7C-2.)**

The separate functions are closely related and complementary, and should therefore be closely related organizationally, but they should be clearly defined and personnel should know which function they are performing at any given time and who is responsible for it. Personnel may be shared for various valid reasons, however, especially in a small organization.

R7C-2 **Develop a documented policy governing the use of outside building and office services contractors. (Refer to Conclusion C7C-3.)**

A written policy will aid in formalizing the centralized function, even if subject to frequent modification as the role of the department evolves.

R7C-3 **Analyze the present and future space requirements at the headquarters location, and, in cooperation with the Corporate Counsel's Real Estate function, develop a plan to provide for them. (Refer to Conclusion C7C-4.)**

7D Materials Management

The materials management function, in this audit, includes purchasing.

There are several categories of materials:

- Stock C material is chemicals used in water treatment, such as disinfectants, coagulants, sodium hydroxide, corrosion control agents, fluoridation sources, polymers, oxidants, powdered carbon, and liquid oxygen.
- Stock D material is fuel. Automotive fuel is stored only at Haddon Heights, Lakewood, and Shrewsbury, but fuel for diesel generators and miscellaneous engines, as well as heating oil, is located at a wide variety of locations.
- Stock E material is any material purchased under a national contract administered by the Service Company—presently limited to construction material such as pipes, valves, fittings, tappan sleeves, meters, fire hydrants, valve boxes, curb boxes and lids, repair clamps, etc.
- All other materials, such as office and janitorial supplies and miscellaneous treatment plant materials.

The purchasing and materials management function is not well consolidated, but rather is distributed among a number of individuals and organizations in New Jersey-American. It is not a full-time job, however, for anyone. The Materials Committee of the Service Company, of which the New Jersey-American Vice President of Operations is a member, is also involved in the sense of negotiating national contracts annually.

Exhibit 7-8 is a list of the positions and organizations involved in purchasing and materials management.

Exhibit 7-8
Purchasing and Materials Management Responsibilities

Organization	Position	Responsibility
Accounting (Purchasing & General Services)	Office Supervisors (2)	Office supplies, janitorial supplies, etc. (presently just for corporate headquarters and some operating centers)
Operations	Operations Manager - Fleet and Materials Management	Meter purchases under Stock E national contract *
Operations	Fleet and Materials Manager	Purchases and materials management of Stock E materials for inventory except meters
Engineering	Engineering Manager	Construction material purchases (mostly Stock E) for specific projects
Operations	Director - Water Quality Control	Purchase and management of Stock C (Chemicals)
Operations (various Operating Centers)	Managers or Operating Managers	Stock D (fuel) and miscellaneous plant and field materials other than Stock C and E, and office supplies in some cases
Service Company and Operations	Materials Committee of the Service Company, incl. NJAWC VP-Operations	Negotiating Stock E material national contracts

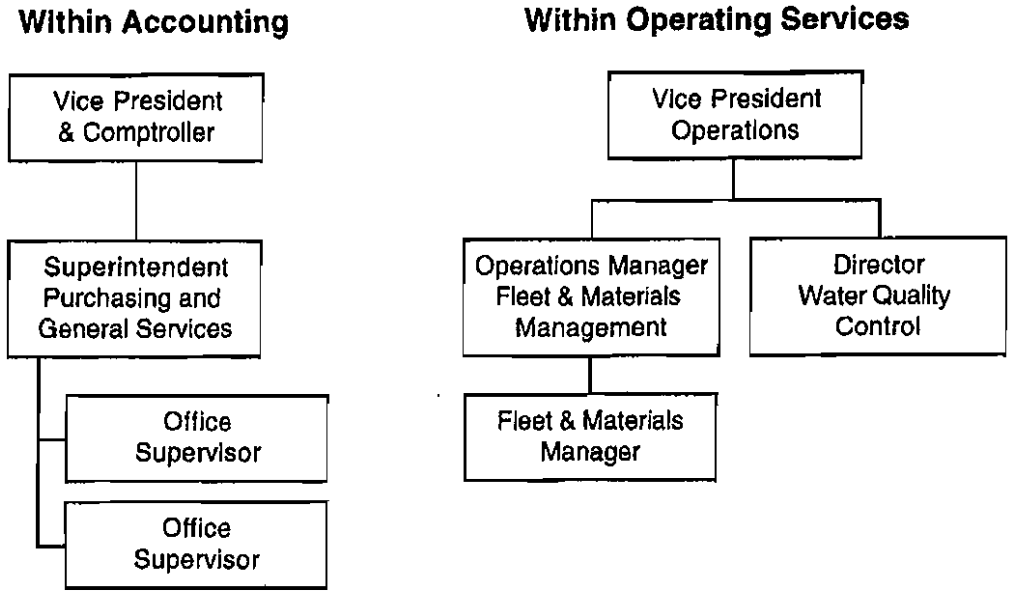
* The meter purchase responsibility is being or has been transferred to the Lakewood meter shop.

The organization structures of the primary purchasing and materials management functions, within Accounting and within Operations, are shown in Exhibit 7-9. The structure of the function within Accounting is the same as that shown in Exhibit 7-7 of the preceding section on Facilities Management.

Until late in the management audit process, the Operations Manager for Fleet and Materials Management and the Director of Water Quality Control reported to a Director of Operating Services, who in turn reported to the Vice President of Operations. The position of Director of Operating Services has been eliminated.

The current Operations Manager for Fleet and Materials Management is scheduled for retirement this Summer, and that position will also be eliminated at that time.

Exhibit 7-9
Organization Structure
Principal Purchasing and Materials Management Functions



The Materials Management Function Within Accounting

The Purchasing and General Services Department was formed in July 1996 and began operating in August. Prior to that time there was no central purchasing function for office supplies; each department ordered its own. The Department is still defining and expanding the scope of its responsibilities for purchasing and inventory control.

There is no present effort to develop quantitative analyses of economic order quantities and inventory maximums and minimums, but this is partly because the Department is kept busy identifying appropriate additions to its scope, assimilating them, and achieving reductions in purchase prices through volume purchases and negotiation. The opportunities for savings through price reductions are the big ticket opportunities at present because the previous lack of a centralized purchasing function left many opportunities unrealized.

In addition to purchasing and materials management, the Purchasing and General Services Department is also responsible for facilities management, the reception

desk and telephone answering, logging in all mail and package receipts for headquarters and the Hadden Heights Operating Center, and bill inserting.

The Stock E Materials Management Function Within Operations

As mentioned above, the current Operations Manager for Fleet and Materials Management is scheduled for retirement this Summer, and the position will not be refilled. The plan is to reassign his responsibilities to others, including the Fleet and Materials manager and personnel at the Lakewood meter shop (regarding meter purchasing).

Stock E materials are purchased under a national contract, but ordered by NJAWC as needed. There are stores kept in each operating center, but the only major warehouse is at Lakewood. Inventory levels at all locations are available on line, although there is no single inventory data base. Physical counts are scheduled semi-annually.

The Fleet and Materials Manager, when he receives a request for Stock E material, will first check for inventory at the various operating centers, and if adequate supplies are not found he will place an order with the supplier. There have apparently been no analytical studies to determine economic order quantities or to optimally set minimum/maximum stock levels. Operating centers have minimum/maximum limits, and will reorder at the minimum, but not necessarily up to the maximum. Decisions regarding minimums, maximums, and actual practice are based on experience and judgment. General supplies, as opposed to construction project materials, are generally ordered every quarter in three-month quantities. Construction items are usually ordered on a "hold-for-release" basis by Engineering, which means that the supplier ships the items in smaller quantities when requested. Any excess materials are returned to general stores.

Materials Management Within Engineering

Engineering orders and manages construction materials, but the task is minimal because the ordering is primarily from national contracts, and there is generally no materials inventory. The materials are ordered specifically for a construction job in correct amounts, and very little material is left over. In essence, Engineering uses Just-In-Time methods for their material acquisitions. On occasion they may draw from general inventory for small jobs with short lead times, and they make such

withdrawals from stock by capital work order. If materials are left over, they return them to general stock with appropriate paperwork transactions. For pipe in excess of 24" they have the option of letting the contractor acquire that on a turn-key contract rather than getting it through a national contract. In the case of sewer work, the contractor usually acquires the material on a turn-key contract.

Materials Management Within Water Quality Control

The Director of Water Quality Control orders and manages Stock C Materials—chemicals. The list of chemicals includes:

- Disinfectants (chlorine or sodium hypochlorite)
- Coagulants
- Sodium Hydroxide
- Corrosion control (about 6 types)
- Fluoridation for Monmouth County only
- Polymers
- Oxidants
- Powdered carbon (used for odor control for specific episodes)
- Liquid Oxygen (which is used to make Ozone which us used as a disinfectant and oxidant)

The chemical budget for 1997 is $3.7 million. There are close to 90 plants providing chemical treatment, including some that merely process water received through pipe lines from other systems.

The company has only one supplier each year for each chemical, but may change the supplier year by year. One particular supplier is also the back up for many of the chemicals because it has a wide array of offerings.

The J.D. Edwards system will permit tracking the chemical usage.

Inventory is delivered to and stored at each point of use, and while it can be moved from one plant to another in drums, the Company prefers to avoid that because of safety problems with transportation.

The reorder policy for chemicals uses simple rules. New Jersey law requires that every water plant maintain a certain minimum for each chemical, ranging from 3 to

30 days' use. New Jersey-American has bulk storage tanks at each plant, and in many cases multiple tanks for a given chemical in order to provide redundancy. They maintain enough of each chemical for five days, or whatever the law requires, whichever is greater. They are guaranteed same-week delivery under their contracts, or same-day delivery in an emergency at an extra charge of about 25% or perhaps more.

They use a uniform five days of minimum inventory because of the potential for supply interruption due to a snow storm or strike by a transportation company, or perhaps a transportation accident. The accident would probably not cause more than a one-day delay. While a more flexible minimum could be used, reflecting, for example, the seasonality of snow storms and the ability to know in advance when strikes are likely, the company believes that there is a value to maintaining the simplicity of the uniform five-day standard.

They do combine deliveries to different plants in order to get a better price, which means that some plants might get delivery earlier than they otherwise would because another nearby plant needs the new shipment.

As to order quantities, the policy is simply to fill up storage tanks in order to get the best price. They have not looked at the financial cost of carrying the inventory, nor have they made any formal attempt to determine an economic order quantity by comparing price effects with carrying costs. The required storage capacity for each chemical for each plant is dictated by the State of New Jersey.

The Company makes an exception in the case of gaseous chlorine, however. Because a recently enacted law (TCPA) requires extensive training and other safety expenses if there are more than 500 pounds of gaseous chlorine on site at a any time, they strictly avoid exceeding 500 pounds. 500 pounds may represent a month's supply for a small plant, but only two to three days for a large plant. The Company experimented for a time with moving chlorine around between plants in order to stay under the 500 pounds, but the movement contributed more risk than the storage of the chlorine. So now they use hypochlorite in place of gaseous chlorine for the larger plants. Hypochlorite, as a source of chlorine, is more expensive than the gaseous form and adds an objectionable swimming pool odor to the water.

Materials Management Within Operating Centers

Each operating center orders and manages various plant and field materials other than Stock C and E, and certain miscellaneous materials, such as office supplies.

The purchase and management of Stock D (fuel) is highly decentralized. There does not even exist a common Stock D data base. The various operating centers have developed their own PC-spreadsheets and/or manual inventory systems.

National Contracts

Only Stock E material is purchased under national contracts, although the development of national contracts for other materials and for vehicles has been considered. There has been consideration in the past of offering national contracts for materials such as paper, work clothing, Stock C (chemicals), and copper tubing.

Copper tubing is not considered a good candidate because its price is highly affected by the volatile price of copper, and suppliers are reluctant to quote a fixed price on an annual contract. A price indexed to the price of copper is possible, but local purchasing at the time of need was judged to be best.

Two explanations for not establishing a national contract for chemicals were offered:

- Chemicals are best purchased locally because they are bulky, expensive, and potentially hazardous to ship, and because interstate shipping of chemicals is complicated by the fact that regulatory requirements for shipping vary by state, with New Jersey being one of the most strict. The volume advantages of a national contract would not therefore be realized.
- The Service Company's Materials Management Committee, which manages national contracts, is not as well equipped or staffed to consider chemicals as it is engineering and field operations. While the Committee reports directly to the Board of Directors of the Service Company rather than Engineering, and some of the Committee members, including the NJAWC Vice President of Operations, have oversight responsibility for water quality, its orientation tends to be more toward engineering and field operations.

The latter reason—an engineering orientation on the Committee—might also explain why progress has not been made in the development of national contracts for vehicles, paper, work clothing, etc. With respect to work clothing, however, it was also pointed out that local tailoring and fitting are important, and there are

differences among union contracts regarding what the companies will pay for uniforms.

Inventory Usage and Turnover

For the twelve months ended 9/30/96, the issuance, average inventory, and therefore inventory turnover rates for Stock C, D, and E materials were as follows:

	Issued	Average Inventory	Turnover Rate
Stock C (Chemicals)	$3,144,867	$480,829	6.54
Stock D (Fuel)	$174,817	$11,168	15.65
Stock E (National Contract)	$7,322,858	$1,767,920	4.14

J.D. Edwards

At present, the full integration of the materials management function is somewhat inhibited by the lack of a single, integrated software system for tracking materials purchasing and inventories.

The J.D. Edwards system will provide several improvements:

- It will be a fully-integrated system including all inventory in a single data base, and integrating purchasing with inventories.
- It will keep track of inventory by specific location within an operating center.
- It will allow on-line access.
- Purchase commitments will accessible be on-line.
- It will facilitate the analysis of economic order quantities, reorder points, etc.

Findings and Conclusions
(Materials Management)

C7D-1 **Both Purchasing & General Services and Fleet & Materials Management have achieved commendable price reductions in purchasing.**

Purchasing and General Services has reportedly obtained a 40% reduction in the Company's phone bills through aggressive negotiation, as well as volume discounts on office supplies through the consolidation of accounts, and has been aggressively seeking opportunities for similar price reductions.

Fleet and Materials Management has reportedly saved $100,000 annually through new arrangements for purchasing copper.

C7D-2 **While the purchasing and materials management function has been partially centralized, especially geographically, a lack of full consolidation of the function across different types of materials still prevents the Company from gaining the full benefits of professional materials management.**

Partly because of the fragmentation of the function, the Company does not appear to have a fully-qualified materials management professional on staff and the function is not capturing the benefits of full professionalism. Stock D (fuel) management is particularly fragmented, with each operating center purchasing and managing its own inventory in its own way.

C7D-3 **Inventory maximums and minimums and order quantities are determined by judgment with no substantial use of analytical methods.**

For example, copy paper is ordered in quantities of about 50 cases every month and a half because 50 cases is the amount that will fit in the stock room. Bill stock is printed every six months, but the six month frequency is based only on judgment.

Stock E items other than for construction are generally ordered in three month quantities, but there is no optimizing analysis backing up that choice of order quantity.

The development of a more analytical approach was and remains the Company's intention in establishing the Purchasing function.

C7D-4 **Alone among Stock E materials, meters have been ordered by the Operations Manager for Fleet and Materials Management instead of by the Fleet and Materials Manager, who reports to him. This responsibility is being transferred, or has recently been transferred, to the Meter Shop at Lakewood.**

The only explanation offered for handling meters differently from other Stock E materials was that the Operations Manager was more familiar with meters, but since meters fall under a national contract it is not clear what special expertise is required to order them.

C7D-5 **There is a need for company-wide computer software for tracking and managing inventory and integrating it with purchasing.**

J.D. Edwards software is intended to provide for that need.

Recommendations
(Materials Management)

R7D-1 **Consolidate all purchasing and materials management functions throughout the Company into the Purchasing and General Services Department, and either develop or hire additional professional materials management capabilities for that department. (Refer to Conclusion C7D-2.)**

There should be only one purchasing and materials management department in the Company. It should be located at headquarters and should probably report to Finance or Accounting. The most logical option is to consolidate all purchasing and materials management into the existing Purchasing and General Services Department, which reports to the Vice President and Comptroller.

Various Operations personnel or others can still be authorized to initiate purchase orders, maintain inventories, and perform other purchasing and materials management functions, but the policies and practices should be established and managed by a central Purchasing Department. Where special technical knowledge is required, such as in the purchase and storage of chemicals or plant maintenance materials and equipment, cooperation between departments will be required. The Purchasing Department, for example, should provide the expertise in materials management from an economic standpoint, while Quality Control would provide expertise in chemical storage and handling from a safety and regulatory standpoint.

With respect to Stock E materials, most of the purchasing work is accomplished once a year in negotiating the national contracts, and this process need not change. Establishing inventory levels, order quantities, locations of stores, and similar materials management issues should be accomplished cooperatively by Operations and Purchasing & General Services.

Stock E purchasing and materials management, other than for construction, is presently associated organizationally with fleet management. While this association is not essential, it can be retained by also transferring the fleet management function to Purchasing and General Services in accordance with a recommendation in Section 7E: Transportation. Maintaining such an association between fleet management and purchasing and materials management is important both because fleet management involves purchasing (vehicle leasing, fuel, maintenance services) and because the same individual at New Jersey-American has both fleet management and Stock E experience.

Stock D (fuel) purchasing and management should be centralized and subject to uniform policies and procedures.

In centralizing the materials management function, utilize the on-line capabilities of the J.D. Edwards system to the extent possible so as to minimize the need for transporting paper documents between locations and offices. The personnel responsible for fleet and materials management

within Operations should be physically relocated from the Tri-County Plant to the Purchasing and General Services offices at headquarters as soon as space can be made available.

It should be feasible to develop analytical inventory management skills among the present staff by utilizing outside training sources, although such skills can also be easily acquired through hiring.

It is obviously important to ensure that increasing professionalism in purchasing and materials management adds to, and doesn't replace, close contact with and understanding of the real needs of the functions being served. Purchasing should continue its present commitment to service, and not become a remote bureaucracy with its own agenda that might not be aligned with the effective overall operation of the Company.

R7D-2 **Conduct analytical studies to determine economic order quantities and inventory minimums and maximums for all major inventory items. (Refer to Conclusion C7D-3.)**

The relatively simple methodology is well-known in the field of materials management and fully described in textbooks. It should be applied first to large-dollar inventory items that are stocked for inventory.

R7D-3 **Combine purchasing and materials management for meters with the same functions for other Stock E items. (Refer to Conclusion C7D-4.)**

There appears to be no significant reason to separate them, and it is organizationally logical for them to be performed by the same person.

R7D-4 **Continue to plan for the inclusion of materials management features in the J.D. Edwards software, and ensure that purchasing and materials management personnel are closely involved in the implementation of J.D. Edwards. (Refer to Conclusion C7D-5.)**

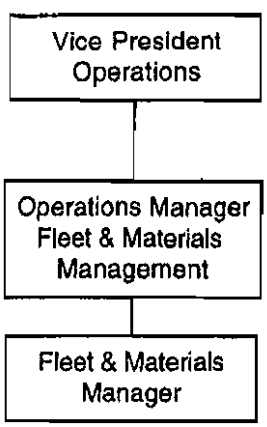
This is the current Company plan. Specifically, ensure that Stock D is encompassed by the J.D. Edwards system.

7E Transportation

The transportation management function is provided by the Fleet and Materials Manager, who reports to the Operations Manager for Fleet and Materials Management, who in turn reports to the Vice President of Operations (formerly through the Director of Operating Services until that position was recently eliminated). The Organization structure is shown in Exhibit 7-10, which is identical to a portion of the right half of Exhibit 7-9 in the previous section on Materials Management. While the Fleet and Materials Manager is responsible for both functions in his title, he spends about 90% of his time on fleet management.

As noted in the previous section on Materials Management, the position of Operations Manager for Fleet and Materials Management will be eliminated when the incumbent retires this summer.

Exhibit 7-10
Organization Structure - Fleet Management



At the time of the previous management audit, fleet management was not centralized, and there was no Company fleet management function. Now, the Fleet and Materials Manager is responsible for the management of all company vehicles. He approves all maintenance in excess of $500. He budgets for leases, fuels, maintenance, and registrations. He obtains the registrations, maintains records, and decides when to trade in the vehicles.

As of October 10, 1996, the numbers of vehicles and their earliest and median model years were as shown in Exhibit 7-11:

Exhibit 7-11
Numbers and Ages of Vehicles

Vehicle Type	Number	Earliest Model Year	Median Model Year
Passenger Car	118	1986	1992
Cube Van	4	1989	1991
Cargo Van	82	1985	1990
Mini Van	15	1990	1993
Pick-Up	36	1987	1990
One-Ton Utility	26	1988	1991
Utility Body	27	1992	1993
Dump	15	1988	1991
Sewer Vac	3	1989	1991

About 15 of the passenger vehicles are unmarked and used by senior management.

The policy for assignment of passenger vehicles is as follows:

- Full-Size

  President
  Officers
  Managers

- Mid-Size

  Directors
  Operations Managers
  Fleet and Materials Manager

- Compact

  Loss Control Manager
  Engineering Manager
  Superintendents
  Supervisors

- Sub-Compacts

  Meter Readers

Forty percent of the vehicles are leased from Automotive Rentals, Inc. (ARI), which is owned by a dealership, while others are leased from GE Capital Fleet Services. Leasing of vehicles began in 1991, and all vehicles acquired since 1992 have been leased, most recently from ARI, although GE Capital has again been selected very recently through a bidding process to replace ARI as the new supplier.

The Service Company does not provide a national contract for the purchase or lease of vehicles, but NJAWC has worked out an agreement with Pennsylvania-American Water Company to consolidate their purchases, and the recent award to GE Capital Fleet Services was by a joint NJAWC-PAWC bidding process. Bidders were invited to bid separately on a leasing and a maintenance contract, and GE Capital was the low bidder on both.

NJAWC has been leasing the vehicles from ARI at a below-prime rate, and gets a price discount on the vehicles. The Company also pays a monthly charge per vehicle as an administration cost.

The Company also pays for maintenance. This has been handled by passing the bills on to ARI which pays them and then bills New Jersey-American. ARI has a list of establishments that are approved to do their maintenance, and they will put others on the list if the Company wants them. If other than one of ARI's national contract maintenance companies does the maintenance, then an additional amount is added to the bill to New Jersey-American. Leases are awarded through competitive bidding to ensure a competitive rate and service. The company uses open-end leases, in which New Jersey-American assumes the risk of residual value, not the lessor, in order to keep the rates low—primarily just the cost of money plus the service.

From ARI's on-line records, the Fleet and Materials Manager can access the history of any vehicle. ARI also provides a monthly maintenance report on every vehicle that has been serviced. They don't provide information on mileage or fuel usage because they don't get information on that from the operating centers.

Fuel purchases are not presently handled uniformly throughout the Company. Three of the operating centers have fuel tanks (although these are being phased out for environmental reasons) and others use designated local service stations. At the corporate office, drivers use any service station and submit their expense for fuel on

an expense report. Individuals who have a car permanently assigned include the cost of fuel on the regular expense reports, while those who use a car occasionally submit receipts for fuel to their particular operating center, where they are passed on to Accounts Payable. The information that ultimately gets to the Fleet and Materials Manager includes maintenance, but there is no recording of mileage. The Company does not keep any records of fuel use by vehicle, and the Fleet and Materials Manager doesn't even see fuel bills, although he is responsible for budgeting for fuel.

The new contract with GE Capital Fleet Services will significantly improve the Company's information on fuel usage and fuel mileage. Fuel will be purchased from participating gas stations, and plastic cards similar to a credit card will be used by the driver to purchase the gas. The card will show the license number of the car and will be coded to the particular car. The mileage will be recorded on a charge slip at the time that gas is purchased. The service station will bill GE Capital, and GE Capital will pay for the fuel and in turn bill NJAWC. They add 2% to the bill, but they will also provide a modem by which the Fleet and Materials Manager will be able to interrogate GE Capital's data file at any time. GE Capital will tabulate the results and keep track of the miles and the fuel usage, and therefore gas mileage by vehicle. Other purchases at the same time will be separately recorded, so there will be no confusion of fuel with other merchandise.

The policy for replacement of vehicles has very recently been simplified. Previously, when budgets were prepared in August of each year, any vehicle of any type that had reached a certain odometer reading or had incurred maintenance expenses of more than a certain amount in the last 12 months was inspected and a judgment was made as to whether to replace it. Vehicles were acquired, all at the same time, in the year following the determination of eligibility. The trade-in criteria were:

Passenger cars:	100,000 miles or $736 in repairs last 12 months
Vans and Pick-ups:	125,000 miles or $736 in repairs last 12 months
Crew trucks:	150,000 miles or $2,500 in repairs last 12 months.

The new criteria for replacement are:

Passenger cars:	3 years of age
Light trucks:	7 years of age
Heavy trucks:	10 years of age.

The objective is to minimize the total lease plus maintenance costs, with an attempt to use expected future costs more directly, rather than using past costs as a guide. Passenger cars are covered by a bumper-to-bumper warranty for three years and then traded in.

The fuel cost, at least, from the GE Capital data base will be linked into the J.D. Edwards system, but it is not known at this time how much other data will be linked.

Findings and Conclusions
(Transportation)

C7E-1 **Vehicle leasing and/or purchasing is an excellent candidate for consolidation through a national contract covering the entire American Water System.**

New Jersey-American's achievement in working out a joint vehicle leasing and maintenance agreement with Pennsylvania-American is commendable. The success of the two companies in cooperating for their mutual advantage provides an excellent example of what can be accomplished and suggests that a national contract might make sense.

A national contract for vehicle purchase and/or lease, and perhaps also fleet management services and software, can be expected to reduce prices and improve service through volume purchasing. The system-wide dollar volume is certainly sufficient to justify the involvement of the Service Company, and since all operating companies are in the same business, they should all be able to agree upon the makes and models of vehicles with differences only in the painting.

A potential problem is that the Service Company may not have fleet purchasing expertise, but New Jersey-American or another operating company could provide that expertise once a year for contract negotiations.

Another potential roadblock is that the management of the individual operating companies may have a more personal interest in selecting the

makes and models of cars for management use than in selecting the suppliers of valves and pipe, and they may therefore be resistant to a national contract.

C7E-2 **Fleet Management need not report to Operations, but is logically associated with such service functions as purchasing, materials management, and facilities management.**

Although most of the vehicles are used by Operations (just as most employees are in Operations) the purchasing and assigning of vehicles and the payment and monitoring of vehicle expenses need not be managed by Operations any more than telephone service or employee benefits. In general (but not as an absolute rule), functions that serve departments throughout the company are best assigned to a department such as Accounting or Finance that routinely serves all areas of the Company.

C7E-3 **The new agreement with GE Capital to provide data on fuel usage and fuel mileage by vehicle will significantly improve New Jersey-American's opportunities to control costs.**

Fuel mileage data showing uncharacteristically low fuel mileage for a particular vehicle may indicate the need for maintenance, and that maintenance may reduce fuel consumption. It can also indicate the possibility of poor driving habits, especially if combined with frequent repairs for brakes, transmission, etc. Exceptionally low fuel mileage may indicate fuel siphoning, particularly if the mileage varies widely between fill-ups.

C7E-4 **The new policy for replacement of vehicles is an improvement over the old policy, but is still overly simplistic and might err now on the side of paying too little attention to the maintenance history and condition of each vehicle.**

The old rule required, for passenger cars for example, either $736 of maintenance in a single year or 100,000 miles at budget time. Both criteria were too simplistic and somewhat arbitrary, and the $736 criterion was too rigidly focused on the past as a forecast of the future. The new rule is 3, 7, or 10 years (3 for passenger cars), which is equally as arbitrary as

mileage, except that the 3-year criterion corresponds to the warranty limit. There is no recognition of the maintenance history or condition of a vehicle, at least in the formal criteria. A better rule would recognize several factors in combination because no single factor, unless it is extreme, provides an adequate indication of a need for replacement. Although judgment is exercised before a replacement decision is made, a more reliable prescreening is needed.

Recommendations
(Transportation)

R7E-1 **If interest can be generated among other operating companies of the American system, study, in concert with them and the Service Company, the pros and cons of a national contract for purchase and/or lease of vehicles, together with lease management software and services, and prepare a written analysis and recommendation. (Refer to Conclusion C7E-1.)**

In addition to probably reducing the cost of vehicles due to a greater buying power, a national contract would increase bargaining leverage for obtaining special software and services, such as the fuel mileage records and vehicle replacement criteria discussed below in other recommendations in this section.

If the Service Company's Materials Management Committee, which manages the present national contracts, is not interested or equipped for administering vehicle leasing and purchase contracts, then the Service company should assign the responsibility to a different component of the organization.

R7E-2 **Reassign the fleet management function to the recently-created Purchasing and General Services Department that reports to the Vice President and Comptroller. (Refer to Conclusion C7E-2.)**

The fleet management function serves departments throughout the company and is logically in the character of "general services," like office services, building maintenance, and other facilities management functions. It is also logically associated with purchasing and inventory

management because it involves vehicle leasing, fuel purchasing, and maintenance service purchasing. Its transfer to Purchasing and General Services is therefore logical, and becomes almost mandatory if the recommendation in Section 7D, to consolidate all purchasing and materials management into the Purchasing and General Services Department, is adopted.

Fleet management should continue to be provided by an individual with specific fleet management experience and knowledge, however. This technical background should be augmented, not replaced, by becoming part of a larger purchasing and inventory management organization.

R7E-3 Develop a more reliable set of criteria for indicating probable need for vehicle replacement, perhaps based on a calculated point value, and consider developing software to calculate the point value for each vehicle. Also consider instituting a program of vehicle condition assessment, emphasizing the anticipated cost of future problems, by a designated contract mechanic as an input to each replacement decision. (Refer to Conclusion C7E-4.)

Replacement decision factors might include mileage, age, normal annual decline in market value, repair costs (current and previous years), number of repairs, fuel mileage, oil consumption as an indicator of engine wear, and repair history of other vehicles of the same make and model, plus anticipated cost of specific future repairs if condition assessment is added to the process. The criteria or point limit might be different for different classes of vehicles. Certain types of past repairs, such as engine repairs, might be counted more heavily than others, such as repair of collision damage to the body, because they are more reliable indicators of the future. Some repairs, such as a recent transmission replacement, might actually indicate a reduced exposure to future costs.

Simple database software, either on a PC or associated with the lease company's records, can calculate a point value using measures that are or should be included in the existing database. If the vendor cannot calculate the point values, then perhaps they can transfer their database once a year to the Fleet and Materials Manager, who can load it into a standard PC database that has the point value calculation field preloaded.

With a fleet of about 325 vehicles, New Jersey-American can well afford a replacement decision process that is more sophisticated than 3, 7, or 10 years. While the value of better decision-making cannot be estimated with any degree of reliability, it is not unreasonable to project that a more sophisticated process might save the company in the neighborhood of $100–$300 per vehicle each year, or about $30,000–$100,000 annually.

One-time development costs will depend upon the level of sophistication and computer systems support. Selection and development of a relatively simple process with little or no computer systems support would likely require no more than two person-weeks of effort, or approximately $4,000. A more sophisticated system involving data base software and perhaps simple program linkages might cost $15,000. Annual operating costs should be very small by comparison.

7F Real Estate and Land Management

The Company has not had a formal real estate and land management function, but it is now moving in the direction of establishing one, partly due to an increase in the volume of real estate transactions. Although the Company owns or leases approximately 343 properties with a combined assessed valuation of approximately $64,800,000, it has not until recently become involved in many real estate transactions. When real estate acquisitions are required they have typically been handled by the Engineering operation. This includes purchasing, getting options, architect-engineering work, etc. When property is to be sold, the local managers have generally done that, following certain operating procedures. The legal department has been involved for legal contracting, etc.

Due to the consolidation of the Company over the past two years, however, the level of real estate activity has increased. Senior headquarters personnel have been more involved of late, and the major decisions have been made at headquarters. Accordingly, centralized responsibility for real estate transactions has very recently been formally assigned to the Corporate Counsel, and a more fully-developed real estate function is anticipated.

Although there is not presently a real estate plan, the company intends to develop one. The American Water System provides a detailed documentation of procedures for the acquisition and sale of land, easements, and interests therein. As a generic document for the entire American Water System, however, it does not provide specifics related to the specific organization and any special state requirements of New Jersey-American.

Current activity includes efforts to dispose of several properties:

- The old Short Hills office building (currently under contract)
- The former Linwood office building
- The Palmira Building (currently under contract)
- 400 acres in Washington Township.

The process for disposition, once the management decision to sell has been made, is to:

- Select a broker and list the property
- Evaluate offers, counter-offer as necessary, and sign a contract
- File a petition with the BPU to approve the sale if it is over $100,000, or file a notice of intent to sell if it is under $100,000
- Solicit other sealed bids on the property by a two public notices in a newspaper one week apart
- Select the winning bid.

Findings and Conclusions
(Real Estate and Land Management)

C7F-1 **The Company has recently assigned overall responsibility for real estate management to the Corporate Counsel.**

While the level of activity does not require and would not justify an individual wholly devoted to real estate management, there has been an increasing need for centralized professionalism as a part-time responsibility, and this assignment will be advantageous to the Company.

C7F-2 **There does not yet exist a real estate plan.**

A plan is necessary not only for guiding transactions, but also for identifying the need for transactions.

Recommendations
(Real Estate and Land Management)

R7F-1 **Develop a Real Estate Management Plan. (Refer to Conclusion C7F-2.)**

The plan should be forward-looking, anticipating needs for real estate acquisitions and dispositions, and should provide guidelines for decision-making.

7G Computer Systems and Services

The effective and efficient management of information technology is becoming increasingly important for utilities, as it is for many other data-intensive industries. As data processing and storage capabilities increase, the demands for more and better-organized information increase at least as rapidly. Good information management requires a proper sensitivity both to the value of information that is presented at the right time in the right format, and also to the need for control over what might otherwise become an explosion of disorganized data and data systems.

In this section we examine the planning, organization structure, resources, development process, and results of the Information Systems function.

Planning

Information Systems, even more than most functions, should devote a substantial effort to understanding exactly what its mission is, what it can do to help the Company to achieve its corporate mission, and what obstacles it must overcome to be successful. The information systems function exists to provide a service to the rest of the company, but that service is not standardized and routine. While there are routine elements to its service, the Information Systems function is characterized more than perhaps any other function by rapid change in both its methods and, more importantly, the nature of its contributions.

To ensure that a volatile information technology is constantly applied in the best way to serve the company is a challenge that requires not only an understanding of the technology, but an appreciation for how it can be applied to serve often-unrecognized needs and to expand opportunities.

Because planning is more important in the rapidly-changing field of Information Systems than in perhaps any other function except executive management, and

because IS personnel are expected to be trained in the analysis and documentation of needs and the design and written presentation of appropriate solutions, we expect a higher standard of formal planning from IS than from most functions. The following comments are based on those higher expectations. It should be noted that most of the need for improvement in IS planning relates to shortcomings in the documentation of plans and the bases for those plans, not necessarily to any lack of visionary thinking.

The Mission of Information Systems

The stated mission of the Information Systems Department at New Jersey-American is to:

- Maintain and protect the integrity of New Jersey-American Water Company's data, its information systems, and all products generated by the systems.
- Manage and support all computer equipment, networks, and communications within New Jersey-American Water Company.
- Provide support to the business units and user community in a fashion that fosters cooperation and teamwork.
- Review current technologies and implement processes and systems that provide cost-justified efficiencies to New Jersey-American Water Company.

The mission statement implies a somewhat narrow view of the responsibilities of the department. The first two items are housekeeping tasks, essentially stating the need to protect and manage the tools and products of the department. Those maintenance tasks are clearly important, but should they be the first two items in the mission of the department?

The third item gets closer to what one would expect to be the mission of the department—supporting the needs of information systems users. Except that the focus seems to be on the *style* of support—one that fosters cooperation and teamwork. The Information Systems Department does not exist to foster cooperation and teamwork.

The fourth item is the most useful statement of the mission. Not the "review current technologies" part—that is just a means to an end—but to "implement processes and

systems that provide cost-justified efficiencies to New Jersey-American Water Company." This is the best statement of why the department exists.

Perhaps an alternative mission statement might read something like:

> To provide and manage information technology and systems that effectively and efficiently serve the needs of New Jersey-American Water Company and expand its opportunities to provide high-quality, low-cost water service and achieve its other strategic objectives.

Both the fourth item of the existing mission statement and the alternative statement emphasize that the mission of the department is to accomplish something useful for the Company—to use the special capabilities and tools of the IS Department to aid the Company in its pursuit of the Company's mission. As a consequence, it becomes apparent that the IS Department must look outward to identify opportunities to be of service in the broader quest.

The difference, from a pragmatic standpoint, is that if you define your mission in terms of what you do with your time instead of why, then whatever you do is, by definition, in support of your mission, and everything you do is of equal importance. If you focus instead on the "why?"—on the purpose of your existence in the Company and how you are serving that purpose—then questions of priority are always highlighted.

Critical Success Factors

From a mission such as the suggested alternative mission statement, one might define a set of critical success factors similar to the following (which are admittedly generic, not specific to NJAWC's needs):

CSF#1	ISD personnel must maintain expertise and stay current with emerging information technologies.
CSF#2	ISD personnel must understand the company's business functions and software applications well enough to recognize information needs and the opportunities for the useful application of information technology.
CSF#3	Users and management must understand information technology well enough to perceive potential applications of computers, to work effectively with technical personnel, and to use applications effectively.

CSF#4 ISD and users, working together, must ensure that information technology is applied to company needs and opportunities so as to expand management's options, improve effectiveness, and reduce costs.

CSF#5 ISD must ensure that information technology delivers reliable service to users.

The first three CSFs specify that ISD personnel must understand both information technology and the business functions to which it is applied, and that users must also understand the technology to some degree. The fourth goes beyond mere understanding to specify that the technology actually be applied usefully, while the fifth requires that reliable service be maintained.

A well-thought-out mission statement and set of critical success factors can provide useful guidance in assessing whether the Information Systems Department has its priorities straight and is marshaling its resources to the best effect.

Strategy

There is no written strategic Information Systems plan. There does exist a two-year-old "Technology and Infrastructure Plan" that describes the Company's then-current information technology infrastructure, discusses alternative technologies generically and in the context of the existing infrastructure, and presents a project schedule. It also includes an informative, although out-of-date, two-page narrative describing potential projects and how they would benefit various departments—one paragraph per project.

But, except for those two pages, the document does not attempt to relate the technology plan to the strategy or needs of the company. While it discusses Wide-Area Network technology in connection with the need to connect different locations, for example, it does not discuss specific communications requirements of the functions or operating centers. It does not discuss any implications of plans to consolidate and move certain functions to headquarters, nor does it mention the major corporate strategy of acquiring and integrating other water systems, and what requirements that might impose on information systems. In short, it does not discuss any Company or departmental strategies, plans, directions, activities, decisions, issues, challenges, opportunities, or needs, or how they might be supported by information systems.

The included Project Chart and Implementation Schedule present timelines for various projects, but there is little information in the plan on why one project is included and another is not. What justification is given is based primarily on the needs of other components of the technological infrastructure, not the needs of the Company. The plan is developed from the bottom up, such as by accumulating specific technical requirements, rather than from the top down by starting with objectives and priorities and translating them into required capabilities.

But while deficiencies in the IS strategic planning make it difficult to verify that the priorities of the Department are adequately aligned with the needs of the Company, and that everything that should be done is being done, nevertheless the IS Department has been moving ahead productively with useful developments in fulfillment of an operational plan.

Operational Planning

The first step of the IS operational plan was to put the necessary infrastructure in place. For example, the Company now has a wide area network, and the 1994–95 study did an analysis of application suites. The users chose Microsoft Office. The Company also has eliminated terminals so that everyone who has computer access has a PC, and has standardized on DOS 6.22 and Windows 3.1. All computers are at least a 486, and new acquisitions are all Pentiums.

The next step of the plan was to improve applications. In that respect, they have selected J.D. Edwards as the financial and accounting system. It replaces the F&A software, which was developed in-house. The decision to replace that software was based on a user survey which determined that the existing software did not meet the needs of the users.

The Department's vision of the needs for information technology over the next five years includes:

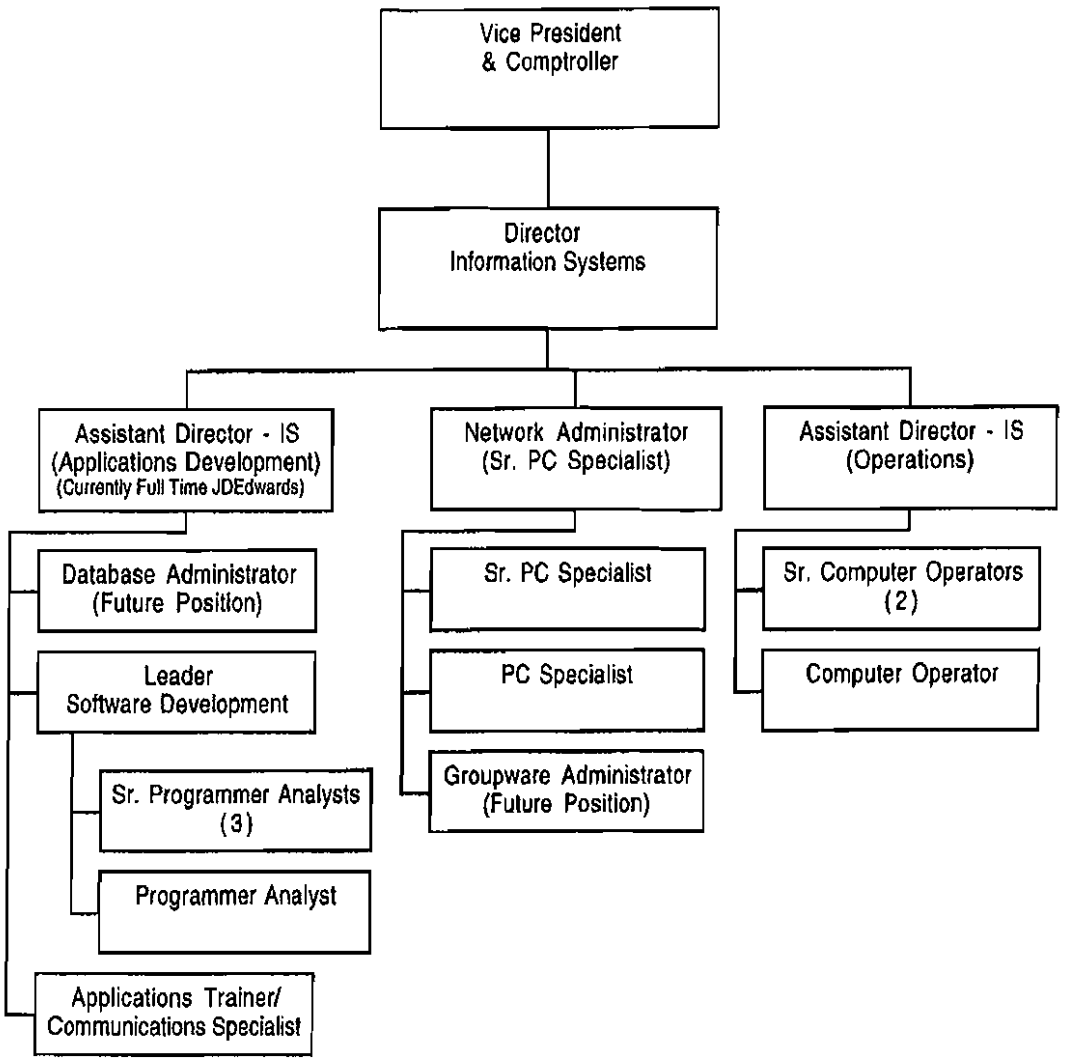
- The implementation of the J.D. Edwards system
- A new customer information system
- Work flow issues:
  - Field service technologies (radio, satellite, etc.)
  - Bar coding for meters and hydrants
  - GPS system for vehicles
  - Merging emergency field service work with scheduled work
  - Imaging to reduce paper work.

The last major item, the work flow issues, was developed by a work flow committee. The committee consisted of the Director of Information Systems, the Comptroller, a PC Specialist, the Director of Operations, and several Field Service personnel. Their purpose was to examine technological solutions to see if they are worthwhile to use in New Jersey-American.

Organization Structure

The organization structure of the Information Systems Department is shown in Exhibit 7-12.

Exhibit 7-12
Organization Structure - Information Systems Department



The External Structure

The Information Systems Department is headed by a Director (this became a vacant position during the course of the audit) who reports to the Vice President and Comptroller, who in turn reports directly to the President. Although in some progressive companies the IS function is headed by a Chief Information Officer who reports directly to the Chief Executive Officer, the reporting relationship found in New Jersey-American is more common. It is also fully satisfactory to serve the needs of the IS Department as the department continues on its present course, in which its

software development role is declining as purchased software replaces software developed and maintained in house.

But there is a growing need for software and systems planning and coordination at the level of the American Water System (AWS) as a whole. Two trends are becoming evident: (1) there is a clear trend toward the AWS-wide selection and use of software packages and therefore the need for close coordination among operating companies, and (2) the expanding need for rapid on-line email and other communications is becoming universal, and will continue both within and among the companies of the American Water System. It is our view that a "committee approach" involving some or all of the operating companies may not be the best way to achieve a sufficiently integrated system throughout the AWS. We believe that the Service Company should take a stronger role in leading the development of information technology within AWS.

The Internal Structure

The internal structure of the IS Department reflects the transition from a mainframe (or mini) orientation to a client-server orientation, but is still in the process of accommodating the shift to purchased software. There are three branches within the Department: Applications Development, Network Administration, and Operations. Applications Development is oriented around developing and maintaining in-house software on the AS/400; Network Administration is the function that manages the infrastructure for the client-server mode of operation, in which some processing is done on PCs that access data bases resident on the AS/400; and Operations is responsible for operating the AS/400 (except that some user departments are beginning to take more direct responsibility for the operation of their particular software).

The acceptance of PCs as a platform for serious processing has been difficult for the information systems departments of some companies because it was perceived as representing a loss of control and responsibility. This department appears to have transcended that objection and accepted responsibility for integrating PCs into the system, and then managing the combination. In an important sense, the responsibilities of the Department have thereby been broadened to include a more

comprehensive and challenging system integration role. The Network Administration branch of the organization is an expression of the acceptance that larger responsibility.

In that same spirit, the IS Department appears to be accepting the addition of major purchased software into the resource inventory, but it has not yet fully accepted, or been assigned, the responsibility for integrating the entire resource package. The challenge of integrating purchased software with in-house software, a central computer with distributed processing on PCs, and the diverse needs of many departments with the capabilities of a varied but limited infrastructure—this is a challenge that may deserve a new Systems Integration Administrator within the Applications Development branch. The Systems Integration Administrator would be a full-time systems analyst, planner, and designer, not an implementor. He or she would be responsible for understanding and anticipating the information technology needs and opportunities of all Company departments (perhaps through liaisons), being aware of systems and technology that are commercially available, and designing comprehensive solutions that make optimum use of available hardware, software, and configuration options.

The liaisons would either report (by direct or dotted line) to this Administrator, or the Administrator would assume the liaison role personally, functioning as a single essentially-full-time liaison and systems analyst to all departments.

Resources

Human Resources

The Information Systems personnel are aware that in some cases their roles will change as J.D. Edwards and Orcom replace the older in-house systems, but some are not sure just how their functions will change.

Several of the programming and lead staff have worked their way up within the Department, starting as computer operators, and do not have degrees in computer science. It is not clear, however, that this is a handicap at present, although it might limit flexibility to accommodate changes in the Department's role.

IS personnel, even those designated as liaisons to user departments, do not seem to be highly aware of user needs, a problem discussed further in the section on "Processes."

Hardware

The Company operates an AS/400 minicomputer at its headquarters location, running under the OS/400 version 3.1 operating system. The AS/400 has recently been upgraded to a Model 530 to accommodate J.D. Edwards software and increasing demands on the system. The upgrade provides a 64 bit architecture as compared to the previous 32. It also provides a RISC (Reduced Instruction Set Computing) processor and upgrades the DASD (Direct Access Storage Device) capacity so that it will be operating at approximately 50% of capacity instead of the previous 80%. The IS Department estimates that the upgrade in capacity should last them two or three years.

The trend over the past two years has been to use the AS/400 more as a file server and use PCs more extensively where they are more suitable. The IS Department appears to have accepted and embraced the PC as a valuable resource, and has taken steps to integrate PCs effectively with the AS/400.

There are about 350 to 400 PCs. Most are Compaq 486s with 16 megabytes of RAM and at least a 420 meg hard drive. All are Pentium upgradable, and some have Pentium already. All new purchases are Pentium, and all 486s are expected to be upgraded to Pentium within a year. In addition to the Compaqs, they also have some IBMs and HPs. Some of the PCs will require upgrading memory to 32 megs in order to accommodate Lotus Notes for tax purposes. Upgrades will be accomplished by groups of computers.

All PCs are standardized on DOS 6.22 and Windows 3.1. Conversion to Windows NT is under consideration.

The IS department also manages an extensive network consisting of Local Area Networks (LANs) and a Wide Area Network (WAN). The recently-established WAN connects all eleven remote offices in New Jersey, using 56k lines, in providing access to the AS/400. There is one Email post office in the corporate offices and one at Fire Road.

The LANs are based on a Novell network 4.1 in each office. Three are token rings (corporate office, Lakewood and Fire Road), and the others are ethernet LANs. The difference is a legacy of the time when they were separate companies. The corporate office, however, has to be a token ring in order to connect to the AS/400. There is a fiber optic ethernet line between the corporate office and the Haddon Heights office across the street, instead of a 56k line. There about 100 users at the corporate office. The File server has four gigabytes of space, and there are about 250 user licenses, so they do not have a problem of capacity.

All of the printers are networked. There are about 200 printers—all laser printers except for some old dot matrix printers that are used on the AS/400 for printing purchase orders and service orders. Dot matrix printers are necessary there because they have to print multi-part forms. The Company has a policy that any printer repair in excess of $200 is not done, but rather the printer, unless it is quite new, is simply replaced.

Software

Exhibit 7-13 lists the applications resident on the AS/400; Exhibit 7-14 lists utilities on the AS/400; and Exhibit 7-15 lists applications run on PCs.

Exhibit 7-13
Applications on the AS/400

Application	Description	Language
Accounts Payable	Produces, tracks and reports payment activities	COBOL, CLP
Applicant Tracking	Enter, track and report on job applicants	COBOL, CLP
BuyPay	Process cash payments accepted by Traveler's Express network	COBOL, CLP, OCL
Cash Management	Report on cash forecasting/cash book	COBOL, CLP
EDIS	Accounts Receivable, Customer Service, Billing, Miscellaneous Invoices, Tap Orders, Service Orders, Deposits	COBOL, OCL, CLP
Finance and Accounting	Finance, General Accounting, Fixed Assets, Taxes	COBOL, CLP
Human Resources	Human Resources	COBOL, CLP
Inventory-Stock C (Chemicals)	Reporting and tracking of all chemical material and supply activity	COBOL, CLP
Inventory-Stock D (Fuel)	Reporting and tracking of all fuel material and supply activity	COBOL, CLP
Inventory-Stock E (Materials)	Reporting and tracking of all water and sewer material and supply activity	COBOL, CLP
Journal Entries	Enter, validate, print and post journal entries	COBOL, CLP
Legal Tracking	Reporting and tracking of legal department projects and charges	MS ACCESS
Management Info. System (Budgets)	Reporting system which tracks all company charges and compares them to current year's budget	COBOL, CLP, Paradox
Meter Shop	Track and report testing, repairs and inventory of water meters	COBOL, OCL, CLP
Payroll	Processing, tracking of employee time, payroll, taxes and benefits	COBOL, CLP
Work Orders	Create, print and track work orders for budgeting purposes	COBOL, CLP
Zip Check	Direct debiting of customer accounts	COBOL, CLP

Exhibit 7-14
Utilities on the AS/400

Application	Description	Language
Abstract/Probe Plus	Documentation and development environment	C, CLP, RPG
AFPMRG	Advanced Function Printing environment	RPG, CLP
CODE-1	U.S. Postal Classification software	CBL, RPG, CLP
Forms-Gen.	AFP/IPDS Form Creation environment	RPG, CLP
Help Desk	IS internal help desk reporting and tracking	MS ACCESS, COBOL, CLP
Mailstream Plus	U.S. Postal Carrier route, zip plus 4	CBL, RPG, CLP
Robot/Scheduler	Job and task scheduler	RPG, CLP
Sequel	Report Writer	SQL, C, RPG
SHOWCASE	Client/Server access AS/400-PC	CLP, RPG

Exhibit 7-15
Applications on PCs

Application	Description	Language
Automated Route Control System (ARCS)	Meter read rerouting system	
Blue Print	Succession planning/career development system	
Complaint response and tracking	On-line and reporting system of customer complaints to the BPU	MS ACCESS
Global Route Coding	Application and maintenance of meter reading situation coding	MS Visual Basic
Management Audit	Reporting and tracking of all requests, interviews, and questionnaires for the 1996 BPU audit	MS ACCESS
Meter Reading	Data collection system based on hand-held devices and PC	
Meter Reading Report System	Tracks meter readers daily productivity	MS ACCESS
TMS	Tax Management system	

PCs have recently been standardized on Microsoft Office Professional Suite (including Word, Excel, PowerPoint, and Access), and use AS/400 Client Access Software (which is an emulation to put an AS/400 screen on the PC), and Schedule Plus (a Microsoft add-on). Microsoft Mail is used for E-mail. They also use miscellaneous software for various special purposes in particular offices. Microsoft Project software is used for scheduling of Information Systems projects.

J.D. Edwards Replaces the F&A System

The J.D. Edwards software is an existing commercially-available software package that has a great deal of flexibility built in, so that it needs to be customized to each application. The customization does not require reprogramming, but only such individual tailoring as defining a chart of accounts, specifying the content of reports, etc. For this reason, the implementation of J.D. Edwards is being handled by a team consisting primarily of users, not Information Systems specialists. And for the most part it will continue to be maintained by users, not IS personnel.

New Jersey-American will be the first company within the American Water System to implement J.D. Edwards, but it will eventually be adopted throughout the System.

The J.D. Edwards software is being implemented at NJAWC in four phases during 1997:

Phase 1: General ledger, budgets, modeling

Phase 2: Purchasing, inventory, accounts payable

Phase 3: Human resources, payroll

Phase 4: Job costing, construction, work orders, fixed assets, equipment management.

Phase 1 was scheduled to be completed March 1 and all the rest by the end of 1997. The General Ledger portion of Phase 1 was actually placed in parallel operation on April 1, 1997, and is expected to cut over to independent operation for the May month-end closing. Phases 3 and 4 will be completed simultaneously.

Some fleet management features are a possible add-on, but implementation of a comprehensive fleet management system has not been given serious consideration.

There are three primary reporting requirements the system must satisfy: external financial reporting, regulatory reporting, and management information reporting. The latter is by far the most challenging. It is based on an approach of activity-based accounting.

There are three classification dimensions used in the J.D. Edwards system:

1. Business units reflect the organization structure (*e.g.*, an operating center and department, etc.)

2. Object codes represent the general ledger account number (*e.g.*, labor)
3. Subsidiary codes represent activities (*e.g.*, meter re-reading).

The system is written in RPG. It can link dynamically to Excel, primarily in the sense of outputting to Excel. It has three versions:

- Green screen (for terminals)
- Screen paint (looks like Windows)
- Client server (known as "One World") allows for implementation of users one at a time.

The finance and accounting system (F&A) that is being phased out was written in COBOL. It consists of a number of parts, including financial accounting and general accounting (monthly accounting for statements to Voorhees). Month end procedures include both preliminary jobs and final statements and reports. The preliminary jobs consist of:

- Pulling in charges from other areas (e.g., payroll, work order)
- System-created journal entries
- Depreciation
- Tax entries, using the software "FAMS".

The month's end statements and reports include:

- Voucher and journal register
- General register
- Balance sheet
- Comparative statement of income
- Trial balance
- Analysis of income
- Statements of income.

Most vouchers are processed on line, and payroll, which is not a part of the F&A system, is posted on line. Month end batch processing, however, is used to create payroll overheads.

The payroll system covers time, rates, etc. It does not interface very closely with the human resource system, although both of them use some of the same files.

The Accounts Payable system does the entering, processing, and paying of vendor invoices, and prints checks. Paper invoices are sent from the operating centers to Accounts Payable where they are entered. There is no computer-based method for comparing invoices to orders, and there is no on-line purchasing system. The first entry to the A/P system is the keying in of an invoice, at which time it becomes a voucher. After the voucher is approved and posted (to the general ledger and the Vouchers & Journals File) a check file is created.

Orcom Will Replace EDIS

Orcom is a commercially-available customer information system that will replace the existing EDIS system. Pennsylvania-American will be the first operating company in the American Water System to implement Orcom, and New Jersey-American will follow.

EDIS was originally written for the System/36, and was converted to the AS/400 in 1993 or 1994, but it still operates in System/36 emulation mode. The EDIS system is the main customer data base, and is also a billing and cash receipts system. It handles service orders related to customers (meter installation and repairs, etc.). Also a part of EDIS is the Meter Inventory and Meter Testing System (Meter Envelope System). This was added to EDIS on May 31, 1993. It generates bar codes for new meters and establishes initial records for each meter. It keeps track of where the meter is and every place it has been , and keeps maintenance and testing records.

EDIS is still mostly a batch system. Updating occurs at night to minimize the outage of the system, but there are several times each night when the system must go down for EDIS updating. Service orders are updated at different times than billing. The longest off time is 30 to 45 minutes for the update of the master files. Orcom, by contrast, will be an on-line system. Service orders will be available to field service personnel by using some form of mobile computing. The EDIS system now can handle only 36 operating centers and business opportunities. While there are presently only 9, this limit of 36 is expected to be a problem as new systems and business opportunities are acquired. A further reason for replacing the system is that it is presently unable to accommodate the year 2000. EDIS is written in COBOL and OCL (the System/36 Job Control Language).

Query capabilities on both the EDIS and finance and accounting systems are provided by two features. One is the AS/400 Query System, which comes with the AS/400 software and has only capability for report generation. The other capability comes from the purchased system Advanced Software Concept Sequel, by which one can either view or print reports or download to the PC. Users can use the system, but in some cases they have to ask their Information Systems representative which files they should be using. Part of the reason is that the file names and the data names are not very explanatory of the older systems. Information Systems is now using more self-explanatory names.

Technical Support Contract

The Company has a contract with Emtec for technical services. They pay $10,000 in advance for hardware services, which gives them a reduced rate of $75/hour for services from Emtec. The normal rate would be around $90 to $100. The hourly charges are deducted from the pre-paid $10,000 until that pool of money is used up, at which point they have to pay another $10,000 in advance. That $10,000 tends to last about a year. For software support, they have a similar arrangement with Emtec, in which they pay $28,800 in advance and the amount is worked off by consulting from a senior engineer who will come out as necessary and do network work, etc.

Processes

Because of the significance of the conversion to J.D. Edwards and Orcom software, much of the normal development work of the Information Systems Department has been placed on hold or restricted in scope until the implications of the conversion are better known, but is now beginning to resume.

Because J.D. Edwards and Orcom are pre-written software packages that only need to be tailored to individual customers using built-in options, most changes can be accomplished without traditional programming expertise. User department personnel are therefore taking and will continue to take a more active and independent role in structuring and maintaining the system. The role of the Information Systems Department will change, and perhaps shrink. Current plans are that IS personnel assigned to J.D. Edwards and Orcom will serve as technical

resources when users forget or are unsure of procedures for changes, and when custom interface is required with other software systems.

The Department plans to add a Database Administrator to control the integrity of the data bases and also to do minor system maintenance for the AS/400, such as minor adjustments to allocations of the printer pool, etc. There will be a need also to modify some modules of the J.D. Edwards software, such as the extension deposits. Liaisons will continue to be needed to customize screens, as well as to help users make the best use of the various systems available to them. The programming role will decrease, however. The emphasis will be on integrating the various systems such as PCs, the AS/400, SCADA, etc., and insuring that the users are always using the most appropriate software. A Groupware Administrator will be added to manage the network-based software packages.

J.D. Edwards is being implemented by an Implementation Team that consists primarily of user department representatives with, as of the time of our interviews, only one representative of the IS Department. Three IS members are now actively involved in the implementation effort—two specifically on the J.D. Edwards team and one primarily involved in Orcom. The team members are very competent in their functional specialties and in the use of the existing computer systems, but are not generally experienced or trained in systems analysis, development, and implementation. In particular, at the time of the interviews they had not been trained in techniques for eliciting creative ideas for system enhancements that are more than incremental improvements. The five J.D. Edwards consultants involved in the implementation have more recently been providing systems analysis training, however. Without such training, opportunities might be lost for developing useful new features that could have resulted from a systematic effort to broaden the vision and imagination of users.

The IS Department has designated individuals to serve as liaisons to specific customer departments or functions. Liaisons are designated for the following business functions:

Accounting	Risk Management
Administration	Rates and Revenue
Engineering	Customer Service
Field Services	Secretarial Support
Finance	Governmental Affairs
Human Resources	Legal
Meter Shop	

There are also liaisons designated for the Microsoft Office product, for the Sequel and Query Report Writer, and for WAN/LAN networks at the various operating centers.

The liaison process has never be fully implemented, however, and the liaisons have not become fully familiar with the processes and needs of their assigned functional areas. Because of this, the liaisons are not fully capable of assisting users in the definition of needs and opportunities. It is still primarily the responsibility of users to request system modifications and new features.

The December 1994 report by Bell Atlantic Network Integration and Integrated Systems Consulting Group discussed a similar deficiency in the New Jersey-American applications development cycle, noting that it traditionally has:

> Lacked sufficient requirements gathering and functional design analysis. Part of the problem lies in the IS department not soliciting input from the user community, soliciting input from users incapable of contributing to the design process, or soliciting input from users who do not represent a true cross-section of the user community for the application. Additional problems can be attributed to the user community in that they cannot adequately identify or describe the application functions which they require, but rather only say that the final product "does not meet their needs."

IS staff members are, however, directly involved with user departments in a variety of meaningful studies. The Director - Information Systems (recently resigned) was a member of a Workflow Automation Study group whose purpose is to identify specific technologies and applications that could improve or streamline the workflow process. He was also a member of a Customer Information System Committee, whose purpose is to ensure that the systems and applications used by the call center and the Customer Relations Department meet their needs, and to

recommend any modifications or enhancements that can improve the customer service process. And he was heavily involved in the selection of the J.D. Edwards and Orcom systems.

The Assistant Director - IS for Applications Development has been on full-time assignment to the J.D. Edwards Implementation Team and has been heavily involved with users in dealing with such topics as security and conversion risks. The Liaison for Finance and Accounting has recently been involved with conversion programming. Although Orcom is not as far along in development, the Liaison for Customer Service participated in the recently completed gap analysis.

All fifteen staff members of the Information Systems Department attended a number of training courses in 1996, averaging about 7.8 courses per person.

The Information Systems staff is not always kept well-informed of IS Department plans that will affect their work and their customer departments. The designated liaisons to the functions most directly affected by the J.D. Edwards and Orcom software did not appear to be as well informed of the software features and implementation schedule as were representatives of those user departments, although their recent involvement in the J.D. Edwards and Orcom implementation efforts has no doubt substantially raised their awareness.

Priority Resolution

While IS personnel keep track of their time by major project, there is no charge-back system in use to transfer costs to user departments. There also appears to be no very formal process for resolving issues of priorities. The IS Department regularly prepares and presents to the Vice President and Comptroller a list of about five pages describing:

- Projects they are working on
- Priority items they are not working on, with schedule if any
- Other items that various senior managers want.

Priority decisions are made by those two individuals with input from senior management.

Analysis in Support of Investments

Major investments are not generally supported by written analyses. There is no written analysis supporting the recent decision to upgrade the AS/400 to a Model 530, at a cost of approximately $450,000. The need for an upgrade was reportedly made clear by computer-generated performance reports, using the computer utilization software supplied by IBM with the AS/400, and user comments on performance. As of mid-December, 1996, there was no written analysis justifying the decision to be the kick-off company for the J.D. Edwards software. An audit request for a cost analysis supporting any recent acquisition of hardware or software drew no response. The Five-Year Budget Planning Worksheet provides the following non-quantitative discussion of alternatives considered and project justification for J.D. Edwards and Orcom combined:

> ALTERNATIVES CONSIDERED AND RELATIVE COST:
>
> The alternative is to not upgrade. Any auxiliary tasks would be performed manually, such as the re-keying of data between systems rather than the automatic update of information through an electronic interface. This would be labor intensive and will divert the workforce from performing their assigned duties while this manual process was performed.
>
> PROJECT JUSTIFICATION:
>
> Past history has proven that applications that are not effectively integrated with other applications will not serve the company's need and will not provide information in a timely manner. The goal is to implement applications and systems that kept the workforce devoted to the customer's and company's needs and to minimize the volume of paper and the duplication of effort.

The decision to select J.D. Edwards was made after analysis of four competing systems. A consulting group (Integrated Systems Consulting Group) and Bell Atlantic assisted in making the selection. The four competing systems were SAP, PeopleSoft, Software 2000, and J.D. Edwards. SAP is a sophisticated and very expensive system that is geared toward manufacturing. It was deemed to be too expensive for the purpose. PeopleSoft is a system that began from HR roots. It focuses on client server applications, but is not well developed in some of the areas required. Software 2000 and J.D. Edwards were the two finalists. J.D. Edwards was considered best for its integration and its reporting, and the evaluators also felt more comfortable with the people. It was the unanimous decision of the committee to go with J.D. Edwards.

The five-year budget projections for the major projects are shown in Exhibit 7-16.

Exhibit 7-16
Budget Projections for Major IS Projects
($000)

Project	Estimated Cost	1996	1997	1998	1999	2000	2001
J.D. Edwards & Orcom	3,855	1,590	2,265				
End User Computer Upgrades	447		447				
	1,300			325	325	325	325
Workflow - Mobile Computing	2,275			1,000	1,275		
Software System Enhancements	2,000			500	500	500	500
Communication Enhancements	340				340		

Support for PC Users

The PC-support activities of Network Administration include a Help Desk. Requests for help are received by telephone or Email (the "A Computer Helper" on the Email system). PC and network matters are referred to the Senior PC Specialist.

A PC Specialist reporting to the Network Administrator receives most of the Help Desk requests and generally responds to them. The two individuals determine the priority of Help Desk requests, generally giving customer service requests first priority. Most requests are handled on the same day, while some take two or three days to handle. Common requests relate to memory error messages, or locking up while in AS/400. The latter problem was expected to be resolved by the upgrade of the AS/400 system, which has since been accomplished.

Training classes are offered to users for Microsoft Office and other supported software by a Trainer who reports to the Assistant Director - IS for Applications Development. He handles all the training for Information Systems.

Two PC User Groups have been established—one for Operations and one for the Corporate Office, and user committees have been set up.

Emtec, mentioned earlier, also provides PC support and maintenance on an as-needed basis under its technical support contract.

Network Administration has not surveyed their users to determine a level of satisfaction, but they believe that the satisfaction level is high. This belief is founded in part on monitoring of the help desk log.

Security

A two-page Policy for Computer Security provides guidelines for:

- Backup sites and procedures
- Virus protection
- Access to the computer and applications.

It is satisfactorily complete as a policy, but could be supplemented by a more detailed specification of procedures.

Results

There is generally a very favorable response to the anticipated implementation of both the J.D. Edwards software and the Orcom software, because the existing systems are perceived, with good reason, to be inadequate. The new systems will be easier to use and more flexible, with a more complete set of useful features. Very importantly, also, they will be easier to maintain both because they are supported by the vendors and because their built-in flexibility will allow many changes to be made by users without the need for reprogramming.

There will still be some gaps. An extension deposit system is scheduled to be written because J.D. Edwards will not include it. A more complete system for fleet management would be helpful.

The Company's information systems, particularly with the implementation of J.D. Edwards and Orcom, generally provide for most information systems needs of users. It is not clear, however, that the priorities for system development are in accordance with the Company's strategic needs because there is no strategic plan for information systems that ties to the corporate strategy. The existing information systems certainly improve effectiveness and efficiency, but it is difficult to say whether they are as helpful as they might be.

Findings and Conclusions
(Computer Systems and Services)

C7G-1 **The Information Systems Department, and the Company as a whole, are embarked on worthwhile projects to replace the obsolete Financial and Accounting System and (soon) the EDIS Customer Information System.**

The old systems were written largely in the antiquated COBOL, which is cumbersome and time-consuming to maintain because program changes require a lot of effort and are subject to errors. They are also batch programs, which prevents on-line updating of data.

C7G-2 **The role of the Information Systems Department will change as J.D. Edwards replaces the old Finance and Accounting System.**

User department personnel are taking and will continue to take a more active and independent role in structuring and maintaining the system because most changes can be accomplished without traditional programming expertise. As a corollary, the role of the Information Systems Department will shrink, or at least change. Information Systems management is aware of this and is working on redefining the role of the department and its personnel.

C7G-3 **The mission statement for Information Systems does not focus sufficiently on how Information Systems can serve the needs and enhance the opportunities of the Company.**

As discussed at the beginning of this section, the existing mission statement is a better description of the *activities* of the IS Department than of its *mission*. This problem is addressed by Recommendation R1D-1 in Chapter 1 and does not require a further recommendation in this section.

C7G-4 **There is no written strategic plan for Information Systems.**

The two-year-old "Technology and Infrastructure Plan" is not strategic in nature, does not attempt to tie the technology plan to the corporate strategy or needs, and is out of date. It does not address what are possibly the most critical planning issues facing the Information Systems

Department, which are (1) how to accommodate to the changing role of the department as the J.D. Edwards and Orcom software, with their sharply reduced need for programming, replace in-house software, and (2) should there be more existing or new applications converted from in-house development to commercially-available software? This problem is addressed by Recommendation R1D-1 in Chapter 1 and does not require a further recommendation in this section.

C7G-5 **There is a growing need for more coordination among the information systems of the various companies of the American Water System.**

Trends toward (1) the system-wide adoption of software packages and (2) expanded on-line communications raise serious questions about whether informal "committee-type" cooperation among the various information systems departments is adequate to bring about a truly integrated AWS-wide system. These are all water companies, after all, with nearly identical information systems requirements. Any unique regulatory or other requirements of individual companies are trivial compared to their similarities.

C7G-6 **The internal IS organization structure may not be optimal for ensuring that the Company is served by the best combination of information systems hardware and software, fully integrated.**

System planning and integration is becoming more important than software development.

C7G-7 **The Information Systems staff has not, at least until recently, been kept well-informed of IS Department plans that will affect their work and their customer departments.**

Even the liaisons were not sufficiently well-informed at the time of the audit interviews about new software and changes affecting their designated departments and their own roles. It is possible that anxiety about changes in the role of the Department and its individual members might have contributed to an atmosphere of unease, in which preliminary information was guarded by management and perceived as inadequate by employees.

C7G-8 **The IS Department Liaisons to specific customer departments are not always pro-active in uncovering the needs of those departments or opportunities to serve them better.**

It is generally the responsibility of users to request new or modified service features, even though most users are not sophisticated in the possibilities and limitations of information systems. Users who lack sophistication in information technology often fail to think very far "beyond the box" of what is currently provided, and are sometimes embarrassed to present a naïve "wish list." Close collaboration between users and IS liaison personnel is valuable in overcoming these limitations and eliciting creative and practical ideas.

C7G-9 **There is no formal process for priority resolution among competing demands on the resources of Information Systems, nor is there a process, such as a charge-back system, to foster considerations of cost-effectiveness on the part of users requesting services from IS.**

There is obviously always a process for priority resolution, but if it is not formalized it is subject to arbitrary application.

C7G-10 **Major investments are not always supported by written analyses.**

There is no written analysis supporting most or all of the recent major investments for information technology.

Information systems professionals are typically analytical by nature and training, and usually understand how to require of users that their requests be adequately documented and justified. They are surely capable of meeting the same standards with their own requests for funds.

C7G-11 **The "Policy for Computer Security" is satisfactorily complete as a policy, but does not provide a sufficiently detailed documentation of security procedures to ensure that security will not falter if a backup person must perform the operations.**

For example, the policies regarding backup storage do not identify the location of the backup storage facility, or the name and phone number of the contact persons, or hours of operation, or procedures for accessing the facility.

Recommendations
(Computer Systems and Services)

R7G-1 Urge the Service Company to take a stronger role in leading the development of information technology within AWS. (Refer to Conclusion C7G-5.)

There are both common needs that apply throughout the AWS and individual needs that apply only within a single operating company. Responding to the former should be the responsibility of the Service Company, and responding to the latter should be the responsibility of each individual operating company. The common needs are considerably greater than the unique needs in both number and importance.

Individual operating companies should continue to be intimately involved in the consideration of common software and systems, but the primary responsibility for providing the vision and making major decisions should reside at the Service Company level.

R7G-2 Consider adding a new Systems Integration Administrator within the Applications Development branch. (Refer to Conclusion C7G-6.)

The Systems Integration Administrator would be a full-time systems analyst, planner, and designer, not an implementor. He or she would be responsible for understanding and anticipating the information technology needs and opportunities of all Company departments (perhaps through liaisons), being aware of systems and technology that are commercially available, and designing comprehensive solutions that make optimum use of available hardware, software, and configuration options.

The liaisons would either report (by direct or dotted line) to this Administrator, or the Administrator would assume the liaison role personally, functioning as a single essentially-full-time liaison and systems analyst to all departments.

R7G-3 **Keep IS staff informed of matters of concern to them unless there is good reason not to, and especially keep liaisons informed of matters of concern to their designated users. (Refer to Conclusion C7G-7.)**

The principal is to be communicative unless there is good reason not to be, rather than the opposite of being closed unless there is good reason to communicate.

R7G-4 **Clarify the present and future role of liaisons. If there is a role, then encourage liaisons to work more closely with their designated user departments. If those departments will be converting to J.D. Edwards or Orcom, either involve the liaisons in the implementation of the new software in order that they may learn, teach, contribute, and share the experience in preparation for providing continuing support for users, or else prepare them now for a different IS responsibility. (Refer to Conclusion C7G-8.)**

The main point is to clarify responsibilities and assign tasks accordingly. If individuals are to function as liaisons, then even if they don't yet know their assigned functions well enough to contribute meaningfully, they must get involved or they will never learn.

R7G-5 **Develop a formal, but flexible, process for priority resolution among competing demands on the resources of Information Systems. Consider the use of a charge-back system to foster considerations of cost-effectiveness on the part of users requesting services from IS. (Refer to Conclusion C7G-9.)**

The purpose of a formal priority resolution process is not to replace human judgment with a rigid formula, but to provide some consistency and openness in the application of human judgment. It is not clear whether a charge-back system would benefit New Jersey-American because of its trend away from in-house development and maintenance of applications, but the question should be considered and addressed in writing.

R7G-6 Establish and adhere to a policy that outlines general analysis requirements to justify the acquisition of major hardware and software. Keep it simple, relying more on management oversight than on detailed rules to ensure that an adequate analysis and justification is provided. (Refer to Conclusion C7G-10.)

A major acquisition proposal justifies and mandates a serious cost-benefit analysis, and its complexity and depth should usually be commensurate with the size of the investment. The admonition to "keep it simple" refers not to the analysis, but to the rules for analysis. Overly-specific rules will seldom apply accurately to a given situation.

R7G-7 Document security procedures as a more-detailed supplement to the "Policy for Computer Security." (Refer to Conclusion C7G-11.)

Written procedures are important for such a vital function, especially in the event of personnel turnover or temporary absence.

7H Records Management

Records management is important not only to avoid the premature destruction of important documents, but also to prevent the excessive accumulation of paper and computer records, often in multiple copies, that have outlived their usefulness. It can also improve the ability of the Company to retrieve documents and records by separating the wheat from the chaff and by imposing a logical discipline on the storage of records. And by reducing the volume of paper, or by segregating some documents for remote storage, it can reduce the growth of filing cabinets and recover floor space for more useful purposes.

The Company does not have an organization or an individual with responsibility for records management. The Legal department, Finance, Accounting, Operations, Information Systems, and all other departments are responsible for maintaining their own documents and records.

There are no Company policies relating to records management, but there are copies of a 1985 records management document ("Regulations to Govern the Preservation of Records of Electric, Gas, and Water Utilities") published by the National Association of Regulatory Utility Commissioners (NARUC).

Findings and Conclusions
(Records Management)

C7H-1 **Because there is no specific individual or organization charged with the responsibility for administering a records management policy, it is unreasonable to expect that managers will implement the NARUC policy or a Company policy on their own.**

Records Management is not likely to be at the top of most managers' lists of "things to do today." Periodically, therefore, an individual responsible for records management, most likely as part of another job, should visit

each department and review, with the manager or his designee, the records that are regularly received, generated, distributed, and retained.

Records retention should be reviewed and changes proposed as required to policies or practices. A review of past documents may not be cost effective, except as a sampling to assess the magnitude of a problem or to verify the implementation of a policy. But a change in future practice is relatively painless and will often be well worth the expenditure of time.

C7H-2 **The NARUC records management requirements are an excellent basis for developing a Company records management policy, but they are not themselves fully adequate because they are twelve years old and not specific to NJAWC or the state of New Jersey.**

The NARUC document refers to records by generic type, but cannot refer to specific NJAWC documents by title. It also cannot reflect specific requirements, if any, under New Jersey law or BPU regulation that might differ from the national standards. Nor can it recognize NJAWC preferences that may be more strict regarding some documents than NARUC requirements.

Nor does it deal with the number of copies to be retained and where and in what form, or whether some should be destroyed while only one copy is retained, or the number to be produced in the first place, and who should get them.

Recommendations
(Records Management)

R7H-1 **Designate one employee to function as a records management specialist as a part of his or her job. As an outgrowth of the first review of departmental records, develop a Company records management policy and departmental versions. (Refer to Conclusions C7H-1 and C7H-2.)**

Select an appropriate individual, because not all enjoy that kind of assignment.

Provide training to the individual and establish a schedule for the review of departmental records with the department manager or his or her designee. Repeat the review every two to four years.

Make the records management policy specific as to document titles or specific kinds of documents where appropriate. For routine periodic documents, such as standard computer generated reports, specify the number of copies and the recipients. Specify retention periods and designate a master official copy, where appropriate, that is to be retained longer than others.

Do all these things only as appropriate, and use common sense. An overly rigid records management policy can cause more problems than it solves. Allow for changes to departmental policies as the manager deems appropriate, as long as legal minimums are not violated. The records management function should not be a "cop," but a resource.