

**GOVERNMENT OF THE DISTRICT OF COLUMBIA
OFFICE OF THE INSPECTOR GENERAL**

**MANAGEMENT REVIEW OF
THE DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY**



**CHARLES C. MADDOX, ESQ.
INSPECTOR GENERAL**

GOVERNMENT OF THE DISTRICT OF COLUMBIA
OFFICE OF THE INSPECTOR GENERAL



Inspector General

November 8, 2000

Jerry N. Johnson, General Manager
D.C. Water and Sewer Authority
5000 Overlook Avenue, S.W., 3rd Floor
Washington, D.C. 20032

Dear Mr. Johnson:

Enclosed is our final report summarizing the results of the Office of the Inspector General's (OIG) Management Review of the District of Columbia Water and Sewer Authority (WASA). This audit was performed under project number OIG-00-2-03LA.

Our audit disclosed that WASA did not have a viable worker safety program at its Plant located in the southwest section of the District. We identified deficiencies associated with WASA's safety program to include insufficient policies and procedures, training, and staffing. We also determined that WASA was not in compliance with safety and health requirements. In addition, previously reported conditions of safety and health violations continued to exist at WASA.

Factors contributing to these conditions include: (1) insufficient attention, at times, directed to establishing and implementing a safety program, in light of management's focus on its important Capital Improvement Plan; (2) management's overall lack of commitment to its safety program, evidenced by insufficient staffing of the Training and Occupational Safety and Health Departments; (3) the absence of any regulatory enforcement remedies enabling the assessment of penalties for noncompliance with laws and regulations; and 4) lack of consistent enforcement by D.C. OSHA inspectors. We believe that these conditions have jeopardized the safety and health of workers and may have contributed to an increase in injuries and costs for workers compensation and other insurance related premiums. These costs total over \$1 million annually.

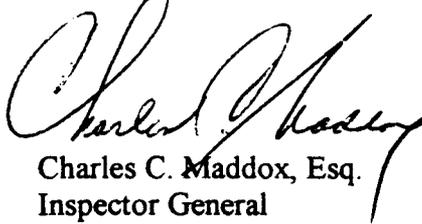
Additionally, WASA did not have controls in place to ensure efficient use of its resources, justify expenditures, and avoid costs that were unnecessary and preventable.

Mr. Jerry N. Johnson
November 8, 2000
Page 3 of 4

Generally, audit recommendations should be resolved within six months of the date of the report. Accordingly, the Chairman of WASA's Board of Directors and the General Manager of WASA should provide responses to their respective recommendations as soon as possible so that we can include them as part of the permanent record.

If you have questions about this report please call me or William J. DiVello, Assistant Inspector General for Audits, at (202) 727-2540.

Sincerely,



Charles C. Maddox, Esq.
Inspector General

Enclosure

cc: Gregory P. Irish, Director of Employment Services
Dr. Abdusalam Omer, Acting Chairman, WASA Board of Directors

- WASA paid in excess of \$566,000 for consultant reports of its safety program that reported findings of a repeat nature.
- WASA's costs related to workers compensation claims exceeded industry standards by approximately \$741,000 for calendar year 1999. Costs such as these can recur until WASA meets comparable industry standards.
- WASA failed to use the most cost effective measures when providing safety training to its workers. We determined that identical training could have been provided at a savings of over \$149,000.
- WASA did not correct safety and health violations that have been reported repeatedly and can hypothetically carry associated fines and penalties of \$3,661,000.
- Bonuses and other related employee benefits estimated at \$87,653 were paid to three members of WASA's executive corps without adequate justification or documentation.
- WASA paid employees gain sharing bonuses in excess of \$575,000 based on questionable performance measures and without adequate justification that established goals had been achieved.

In order to facilitate the audit effort, and to initiate corrective actions by management, we issued two Management Alert Reports to WASA on health and safety matters. The findings and recommendations focused on potential health hazards regarding safe drinking water and inadequate facilities and supplies for employee hygiene needs.

The WASA comments (Exhibits B C, and E) to the draft report are generally responsive to the intent of the recommendations. However, the Chairman of WASA's Board of Directors did not respond to recommendation 6 concerning the reporting structure of WASA's Safety Committee, despite a specific request for him to do so. Therefore, we consider this recommendation to be unresolved.

The Director of the Department of Employment Services provided comments (Exhibit D) to our recommendation relative to strengthening the regulatory powers of the D.C. OSHA. These comments are generally responsive to the intent of the recommendation.

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TABLE OF CONTENTS

EXECUTIVE DIGEST

OVERVIEW	1
CONCLUSIONS	1
PERSPECTIVE	3
CORRECTIVE ACTIONS.....	4

INTRODUCTION

BACKGROUND	5
OBJECTIVES.....	6
SCOPE AND METHODOLOGY	6

RESULTS OF AUDIT

FINDING 1: WASA’s Safety Program	7
1. FOLLOW-UP ON PREVIOUS REPORTS	7
2. OCCUPATIONAL SAFETY AND HEALTH REQUIREMENTS	16
3. SAFETY AND HEALTH VIOLATIONS	26
4. COMMUNICATION	40
5. INFORMATION PROVIDED TO OUTSIDE PARTIES	44

FINDING 2: WASA’s Use of Resources and Assets.....47

1. EXECUTIVE BONUSES 47

2. OVERTIME 48

3. EMPLOYEE GAIN SHARING..... 49

4. MAINTENANCE MANAGEMENT SYSTEM..... 50

RECOMMENDATIONS..... 53

EXHIBITS

- A. Title 29, Code of Federal Regulations Citations
- B. WASA response to the recommendations contained in the draft report, dated October 30, 2000
- C. WASA comments to the Draft Report dated September 22, 2000
- D. DOES response to the recommendation contained in the draft report, dated October 31, 2000
- E. WASA response on behalf of the Chairman of the Board of Directors for WASA, dated September 22, 2000

List of Acronyms

CFR	Code of Federal Regulations
CIP	Capital Improvement Plan
D.C.	District of Columbia
EMA	Emergency Management Agency
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
MMS	Maintenance Management System
OIG	Office of the Inspector General
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
PSM	Process Safety Management
SCBA	Self-contained Breathing Apparatus
WASA	Water and Sewer Authority

EXECUTIVE DIGEST

OVERVIEW

Concerns of a potential threat to the safety and health of the employees and nearby residents of the District of Columbia (D.C.) Water and Sewer Authority (WASA) Blue Plains Wastewater Sewage Treatment Plant (Plant) received extensive coverage in the news media. As a result, the Mayor instructed the Director of the D.C. Emergency Management Agency (EMA) to perform a 48-hour initial assessment of the Plant and prepare a report of observations and deficiencies. The assessment was conducted on November 5, 1999. In his report, the Director of EMA concluded that there was not an imminent threat to public health and/or safety at the Plant.. His conclusion was drawn after WASA had replaced 4 of the 7 reported defective chlorine sensors and made other improvements to the Chlorine I Building. Additionally, the report identified three major areas at the Plant with noted deficiencies. Specifically, the report stated that WASA needed to: (1) increase plant security; (2) implement prevention and safety measures relating to chemical processes, worker training, worker and plant safety, and environmental concerns; and (3) address preparedness areas to include preventive maintenance, emergency response, and training. Based on the above findings, the Director of EMA requested that the Office of the Inspector General (OIG) perform a management accountability review of operations and practices at the Plant and also review management actions relative to past audits conducted by regulatory agencies and consultants.

In order to facilitate cooperation and open channels of communication between our auditors and WASA management, employees and contractors, we asked WASA management to inform all persons at the Plant that a management review of operations was being conducted by the OIG. We provided flyers offering confidential interviews and asked that they be placed at all Plant locations. We observed that the flyers were only posted in the Administrative Building. During the time of our fieldwork, we did not receive any calls from workers in response to our flyers. Consequently, we approached workers at the Plant to discuss safety and health issues. At first, employees were reluctant to discuss concerns for fear of retaliation and also expressed general concerns that any efforts to bring such issues to management's attention would be futile. Our continued presence brought the beginnings of signs of improvement and the workers at the Plant eventually met with us and discussed their concerns.

CONCLUSIONS

Our audit disclosed that WASA did not have a viable safety program. We identified deficiencies associated with WASA's safety program to include insufficient policies and

procedures, training, and staffing. We also determined that WASA was not in compliance with safety and health requirements. In addition, previously reported conditions of safety and health violations continued to exist at the Plant.

It is important to note that many deficiencies identified during our audit were corrected despite WASA refuting or minimizing their validity or severity. However, WASA had not taken action on all of the items identified during our audit, and some actions taken did not adequately resolve the reported conditions. Had WASA incorporated in its safety program proactive measures to ensure proper maintenance, repairs, and inspections of buildings, grounds and equipment, and also had mechanisms in place to correct reported deficiencies, we believe deficiencies would have been identified and corrected in the normal course of operations.

The picture on the right depicts common safety conditions at the Plant. The picture identifies numerous trip and fall hazards; metal steps are bent and wet, handrails are not attached, and hoses and other cords block access to work areas. More importantly, we were informed that three people were injured in and around this area.



The picture on the left depicts common health conditions at the Plant. The picture identifies over 200 yards of raw sewage leaking from pipes. There are several tunnels and galley areas that contain broken pumps and raw sewage spills such as those shown here. Conditions such as these increase the potential for airborne diseases from contact with fecal matter. We identified 11 WASA employees who had filed claims for dermatitis.

Conditions such as these have existed for several years. We believe a nexus exists between the lack of emphasis on safety and health related issues and the high rate of worker injuries.

Additionally, WASA did not have controls in place to ensure efficient use of its resources, justify expenditures or avoid costs that were unnecessary and preventable.

- WASA paid in excess of \$566,000 for consultant reports of its safety program that reported findings of a repeat nature.

- WASA's costs for workers compensation claims that exceeded industry standards are estimated at \$741,000 for calendar year 1999. Costs such as these are likely to recur until WASA meets industry standards.
- WASA did not use cost effective measures when providing safety training to its workers. For the 10 month period reviewed, identical training could have been provided at a savings of over \$149,000. Similar savings can continue to be realized.
- WASA did not correct safety and health violations that have been repeatedly reported and can carry associated fines and penalties of \$3,661,000.
- Bonuses and other related employee benefits estimated at \$87,653 were paid to three members of WASA's executive corps without adequate justification or documentation.
- WASA paid employees gain sharing bonuses in excess of \$575,000 based on questionable performance measures and without adequate justification or documentation that established goals had been achieved.

PERSPECTIVE

Prior to becoming an independent agency in the fall of 1996, WASA operated under the D.C. Department of Public Works. After its reorganization, WASA's Board of Directors approved the appointment of its General Manager and key management positions to include Directors for Training, Risk Management, and Occupational Safety and Health. With the establishment and filling of these critical positions, WASA had taken the first steps toward developing and implementing a viable safety program. However, much work remains.

WASA has undertaken a \$1.7 billion Capital Improvement Plan (CIP) to repair and upgrade its infrastructure that primarily covers the six-year period of Fiscal Years (FYs) 1998 to 2004. The need for an investment of this magnitude resulted from a wide variety of causes. These causes range from compliance with Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) regulations for water and wastewater systems, to restoring the integrity and reliability of its infrastructure, to updating its facilities with more process-efficient and energy-efficient equipment and systems, to meeting regional environmental initiatives. The next 3 to 4 years of WASA's CIP will focus on catching up and reacting to imminent water and wastewater system failures and regulatory compliance issues.

In addition to implementing its CIP, WASA has been struggling with developing its safety program and has been faced with a multitude of barriers that has slowed its implementation. The first barrier was WASA's lack of commitment to its safety program, which is evidenced in past years by underfunding and understaffing of the Safety Office. Until fairly recently there was very little support for the safety program from top management. We believe that the safety program was basically a mechanism to show oversight authorities that there was something in place. Additionally, management's lack of emphasis on such issues as housekeeping, safety awareness and communication has instilled a sense of lack of concern, or at least the perception of a lack of concern for personnel at the Plant. Finally,

management's decision not to focus energies to correct reported health and safety deficiencies is based in part, on the belief that many of the identified problems would be eliminated with the implementation of its CIP. Reported deficiencies include: inadequate housekeeping, preventive maintenance and routine inspections of plant buildings and equipment. Management stated that they allocated resources with competing priorities of its CIP.

During the course of our audit, we found the climate of management to be defensive and nonresponsive. On one occasion, we found it necessary to issue subpoenas in order to gain access to documents that should be readily available. Management adopted a confrontational attitude that put a chilling effect on the audit. At the onset of the audit, management insisted on attending interviews with first line managers, and through most of the audit process required all requests for documents to be made in writing and first reviewed by its internal auditor before being provided to OIG auditors. Management was not receptive to our findings, resistant to implementing corrective actions and insistent on adopting a reactive approach to addressing safety and health violations.

CORRECTIVE ACTIONS

Due to the extensive list of unimplemented recommendations at WASA, we concentrated our recommendations on following up on previously reported findings, recommending that the Director of the Department of Employment Services draft legislation to strengthen regulatory authority powers of the D.C. OSHA and recommending WASA's Safety Committee report directly to WASA's Board of Directors. A list of recommendations is included at the end of our report with management comments incorporated where appropriate. The full text of management comments are included at Exhibits B, C, and D.

On September 22, 2000, WASA provided a formal response to the draft report. In this response, management commented on specific issues described in the transmittal letter to the draft report. Management also requested an exit conference to discuss the findings in more detail. This exit conference was held on October 11, 2000. Additional meetings with WASA senior staff were held on October 12, and October 20, 2000, to discuss outstanding issues.

Additionally, On September 22, 2000, the General Manager of WASA's responded to our draft report at the request of the former Chairman of the Board of Directors for WASA. This response requested that the OIG include reference to a Department of Transportation and OSHA review of the rail line system and handling of chlorine and the findings reported by the Environmental Protection Agency (EPA). Accordingly, we have included the full text of this response (Exhibit E) including the EPA e-mail to WASA summarizing EPA's conclusions. We do note, however, that EPA's two day investigation occurred prior to our audit.

The WASA and the DOES comments to the draft report are generally responsive to the intent of the recommendations. However, recommendation 6, addressed to the Chairman of WASA's Board of Directors, remains unresolved.

INTRODUCTION

BACKGROUND

The mission of WASA is to provide retail water service and wastewater collection and treatment service to the District of Columbia and portions of the surrounding metropolitan area.

WASA was established as an independent agency pursuant to the District of Columbia Water and Sewer Authority Act of 1996, Public Law 104-184, effective August 6, 1996. As a result, WASA assumed certain major functions previously performed by the District, such as financial, procurement, and human resource services. WASA's daily operations are controlled by a General Manager who reports to an 11-member Board of Directors. The Board includes six representatives from the District and five from participating jurisdictions in Maryland and Virginia. The Board of Directors sets the vision and policy of WASA and approves the Master Plan, Financial Plan, and CIP. The General Manager and the Deputy General Manager (Chief Engineer) provide overall direction and guidance to WASA staff. WASA employs approximately 1,150 employees and has about 460 contractors working at the Plant. WASA's FY 2000 revenues are estimated at approximately \$235 million. Projected revenues for 2001 are estimated at \$248 million.

WASA develops its own budget that is incorporated into the District's budget. The Mayor cannot adjust WASA's budget. Rates governing residential and commercial customers in the District are set by WASA's Board Members while suburban jurisdictions pay a negotiated rate for use of the facilities. WASA's new organizational structure enables it to create its own regulations for finance, procurement, and human resource functions and also to negotiate its own contracts and labor agreements.

WASA's facility at Blue Plains is the largest advanced wastewater treatment facility in the world. The Plant, located in the southwest section of Washington D.C.; serves Fairfax County, Virginia; Loudoun County, Virginia; and Montgomery County, Maryland. The Plant was built in 1938. The entire facility consists of 154 acres and houses all the processes to treat wastewater and associated sludges. WASA is engaged in the business of water treatment and distribution and sewage collection. Specifically, WASA treats and disposes of sewage and liquid wastes delivered from sewage systems of the District of Columbia and surrounding jurisdictions in Maryland and Virginia. The Plant is designed to handle a maximum load of 370 million gallons of wastewater per day (in full tertiary treatment). WASA also purchases water from the Washington Aqueduct and distributes over 140 million gallons of drinking water daily for use by individuals and businesses. In addition, the plant serves as a refueling station for municipal vehicles. WASA is operated and regulated in accordance with the Clean Water Act, Clean Air Act, and EPA and OSHA Standards.

OBJECTIVES

The audit objectives were to assess and report on the overall operations and controls at the Plant. Specifically, the audit focused on management's effectiveness in establishing, implementing, and monitoring operations related to safety and health and use of resources.

SCOPE AND METHODOLOGY

The audit scope primarily covered transactions from FY 1998 into the third quarter of FY 2000. We reviewed WASA personnel and safety operating policies and procedures as well as regulatory requirements established by the EPA and OSHA. We reviewed management controls established to ensure compliance with internal policies and regulatory requirements. We reviewed prior consultant and regulatory reports of plant operations dating back to 1995 and evaluated the sufficiency of management's actions to correct reported deficiencies. Interviews were conducted with WASA management, employees, contractors, and union representatives to determine the validity of the deficiencies reported. We also were provided data from the D.C. Council Committee on Public Works and the Environment pertaining to aspects of our audit for follow-up.

Additionally, the OIG team solicited the assistance from regulatory agencies such as the D.C. Fire and Emergency Medical Services (EMS), D.C. OSHA, and the Metropolitan Police Department's (MPD) Environmental Crimes Protection Unit to perform inspections of Plant buildings and grounds and to test audible components of alarm systems and quality of drinking water at the Plant. We also coordinated our work with federal agencies to include the FBI and United States Coast Guard.

During the audit process WASA would not provide us with accurate, complete, and timely information relating to aspects of its general operations, personnel, or its safety program. Specifically, information relating to administrative policies, employee bonuses and workers compensation injury claims had to be obtained by issuing a subpoena. It is important to note that it was unusual for the OIG not to receive cooperation from an agency in obtaining and reviewing records that are clearly identified in the law as being under our purview. As a result, the audit process was substantially and significantly delayed. For several months, WASA had the opportunity to provide information that the OIG auditors had requested. In that period, the auditors met with WASA management many times to request the documentation. Additionally, in some instances, we noted that when WASA did provide requested data, it was initially incomplete or lacked attachments. WASA attributed its failure to adequately provide requested data to semantics or a lack of clear understanding of the request. Generally, the auditors obtained the information after repeated requests to management.

AUDIT RESULTS

FINDING 1: WASA's Safety Program

SYNOPSIS WASA does not have a viable safety program. Management's focus on its CIP and its overall lack of commitment to its safety program, coupled with the absence of any regulatory enforcement remedies has jeopardized the safety and health of workers and may have contributed to an increase in injuries and costs for workers compensation and other insurance related premiums.

AUDIT RESULTS Our audit confirmed that: (1) previously reported conditions of chlorine related safety issues existed at the Plant, (2) OSHA's requirements were not adhered to, (3) safety and health violations existed, (4) adequate channels of communication were not established for the transfer of information between WASA management, employees and neighboring residents that are affected by WASA operations, and (5) information provided to outside parties was incomplete or inaccurate.

We reviewed various aspects of WASA's safety program. Our audit findings mirrored those reported in audits of WASA's safety program conducted during the period of 1995 to 1999. Although WASA has historically attempted to initiate a safety program by developing safety manuals, initiating safety audits, and providing safety training, the existing safety program does not exist as a viable, comprehensive, and effective program. Some elements of the program do exist in partial form, but none have been formally adopted or implemented throughout WASA. Our review of the progress made by WASA to implement a viable safety program has identified little progress than that previously reported. Additionally, we believe that the missing elements of WASA's safety program is a cause for the high rate of injuries and accidents at the Plant. We identified 5 safety-related deficiencies during our audit. They are as follows:

1. FOLLOW-UP ON PREVIOUS REPORTS

WASA's actions taken to correct previously reported deficiencies and implement recommendations resulting from past audits, to comply with regulatory requirements, to provide a safe and healthy working environment and to communicate effectively between management and employees, contractors and union representatives are discussed below.

News Media

On November 5, 1999, a newspaper published an article that criticized the practices and procedures for handling chlorine at the Plant. The article identified over 20 chlorine-related safety deficiencies, including: disconnected or inoperable chlorine alarms and inadequate staffing and housekeeping. It also identified several instances during the past five years in which notice of these conditions had been conveyed to WASA management by regulatory agencies, consultants and union representatives but nevertheless remain uncorrected.

In response to this article, WASA replaced chlorine sensors, enhanced emergency breathing equipment, repaired the audible alarm system, added night time supervisors, and improved security. WASA also commissioned a contractor to prepare an investigative report to determine whether immediate and substantial public safety issues were present. The resulting report generally agreed with the findings in the news article and concluded that there was no imminent threat to public safety and health.

In order to assess the actions taken by WASA to correct identified deficiencies, the OIG reviewed maintenance records and work orders, held discussions with employees, contractors and WASA management, and accompanied by a D.C. OSHA inspector and members of the D.C. Fire and EMS, conducted inspections of the Chlorine 1 Building. Although we observed that trash had been cleaned up, painting and other janitorial fixes had been performed and - most notably - the replacement of defective sensors with new state of the art chlorine sensors was underway, WASA still had not adequately addressed all deficiencies noted. A discussion of the major deficiencies reported and WASA's actions to correct them follow.

Disconnected Alarms. The newspaper article reported that alarms used to detect the presence of chlorine had been disconnected in the Chlorine 1 Building because of repeated nuisance trips. We confirmed that alarms were disconnected. However, the alarms in question were connected to an enunciator panel originally used for monitoring the wastewater process and not intended for the detection of the presence of chlorine. Coincidentally, during an inspection of the Chlorine 1 Building, we determined that alarms connected to the chlorine sensors were temporarily disconnected during the installation of the new chlorine sensor system. The disconnection of an alarm - for whatever reason - circumvents the purpose of having an alarm. At no time should alarms intended to notify personnel of the presence of chlorine or other hazardous materials, without specific back-up or contingency plans or alarms, be disconnected. Disconnection of alarms jeopardizes the safety and health of workers at the Plant.

Inoperable Chlorine Detection Sensors. New chlorine detection sensors were operational at the time of our walkthrough inspection conducted on February 7, 2000, with inspectors from Fire and EMS and D.C. OSHA. However, subsequent to the November 5, 1999 news article, maintenance records showed that 4 of the 7 chlorine detection sensors were replaced because they were inoperable. We were informed that replacement sensors were not in stock and had to be ordered. WASA was unable to provide any documentation that would identify the length of time it took to obtain and install the new sensors. Additionally, it was noted that alarms were armed but they were not patched into the ventilation fan or visual alarm component. In the event of a chlorine leak, ventilation fans would have to have been manually turned on.

After testing the original outside audible alarm and rooftop visual alarm, we determined that they were inadequate. D.C. Fire and EMS, D.C. OSHA inspectors and WASA operators confirmed that the visual component could not be seen in daylight. Additionally, operators in the building brought to our attention that the outside alarm on the main chlorine tank could not be heard within the operator's office within the Chlorine 1 Building. We confirmed that the siren did not meet OSHA required decibel limits. After repeated notifications by the OIG to correct these deficiencies, WASA management replaced the strobe light with a red beacon light and enhanced the siren component of the audible alarm.

Supervision. It was reported in the news article that the Chlorine 1 Building had been left unattended. Due to the serious and sensitive nature of the operations at this location, WASA required this building to be manned 24 hours a day. In discussions with operators we were told that they left the building in order to prepare food or use bathroom facilities in an adjacent building due to inadequate accommodations in the building.

In response to the news article, WASA management reported to the WASA Board of Directors that they had re-located a supervisor to the Chlorine 1 Building. This person, in addition to the staff operator on duty would ensure proper coverage. Additionally, WASA installed a microwave oven and made repairs to the roof in the bathroom. However, through discussions with personnel assigned to the building, and our observations, we determined that WASA had not re-located a supervisor as reported. In fact, one month after the news article, the building was again left unattended. When WASA management learned of this incident they suspended the operator for 2 weeks without pay in an attempt to deter further non-compliance with established policies. Disciplinary action is not the only alternative to deter or prevent operators from leaving the building.

Management should consider alternatives such as providing janitorial services to the building, bathroom supplies, and offering employees options for food storage and preparation to prevent unexcused absences. Corrective actions such as these cost an insignificant amount and may be a step toward

eliminating the underlying perception by workers that management has a lack of concern for its employees.

Restroom Facilities. In discussions with Plant operators we were informed that the roof in the restroom needed to be repaired, a fixture was not operational, and janitorial services and toiletries needed to be provided. We observed that WASA had made necessary repairs to the roof and plumbing in the restroom but failed to provide necessary supplies such as soap, toilet paper, and paper towels. Additionally, the restroom was not adequately heated in the winter months.

These conditions were reported to WASA management by the OIG in two separate Management Alert Reports (MAR's) and also brought to the attention of the Director of Occupation Safety and Health at the Plant. After several notifications, WASA management has agreed to take actions that should correct these deficiencies.

Prior Audits

WASA engaged consultants to perform audits of its safety program - at a cost of \$566,000 - that have identified findings of a repeat nature. Regulatory agencies and union officials have also reported similar findings to WASA management. Deficiencies remain uncorrected and recommendations have not been implemented because WASA did not develop: (1) a central repository for reports; (2) policies and procedures that delineate responsibility for follow-up on findings and recommendations; and (3) a Management Information System (MIS) to maintain, track and follow-up on reported findings and recommendations. Had WASA realized the benefit of such reviews or had as part of its management process, procedures in place to follow-up on previously reported deficiencies they may have been corrected when originally reported and costs associated with additional reviews may have been reduced or eliminated.

Our review of findings and recommendations reported to WASA management by consultants, regulatory agencies, and union representatives identified hundreds of findings and recommendations¹. We have grouped the findings into four categories to show the number of issues raised under specific categories. The amounts below are not all inclusive of the number and types of deficiencies previously reported.

This analysis shows that since 1995, safety and health related issues have been brought to management's attention time and time again with little or no action taken to correct them. The following table summarizes the number of times select deficiencies have been reported to WASA management by a reviewing entity.

¹ Because WASA did not have a means of monitoring previously reported findings and recommendations, we are not certain that we have identified all previous audits of WASA's Safety Program.

Category of Deficiency	Reviewing Entity			Total
	Regulatory Agencies	Consultants	Union	
Safety Program, Personal Protective Equipment	25	18	19	62
Facilities Maintenance and Housekeeping	42	6	62	110
Employee Training and Community Awareness	19	9	8	36
Alarms and Sensors	11	6	0	17

In March of 2000, WASA's Assistant General Manager provided us with a spreadsheet compiled by a contractor listing recommendations aimed at correcting deficiencies and the corresponding department responsible for corrective action. This list did not contain all of the recommendations reported to WASA officials from consultants, regulatory agencies and union representatives. Additionally, we determined that as of March 2000, a minimal amount of progress had been made in resolving identified discrepancies or implementing recommendations. In June of 2000, we were provided with another spreadsheet from WASA's Employee Relations Liaison that contained recommendations reported to WASA union representatives and consultants. We were informed that this spreadsheet had been prepared to address issues contained in the grievance filed by WASA's union and to address deficiencies cited by consultants. We again noted that this list did not include all of the recommendations made in previous reports of WASA's safety program, nor did it identify that any significant progress had been made in implementing reported recommendations. Additionally, we learned that this spreadsheet had not been provided to union representatives.

The following is a discussion of the reports identified and the resulting findings and recommendations.

Consultant Reports.

Our review identified four reports of WASA's safety program prepared by consultants. A Safety Audit was completed in May of 1995, a Process Safety Management (PSM) Audit was completed in May of 1999, a Program Assessment was completed in June of 1999, and an Insurance Company completed an Independent Assessment of WASA's Accident and Injury Claims in August of 1999. Each of these four reports was critical of WASA's safety program. The basic conditions centered on WASA's failure to show that its safety program was effective and that OSHA safety requirements were adhered to. Additionally, consistent with this observation, we found that WASA had not fully corrected deficiencies or implemented recommendations made in these reports. A discussion of these reports and the actions taken by WASA to address or correct identified deficiencies follows.

1995 Safety Audit - Findings reported were almost identical to those identified in a Chemical Safety Audit conducted by EPA in 1995. Consultant costs associated with this audit totalled approximately \$108,000. We also noted that WASA did not have a copy of this report, nor were any of the key managers at WASA familiar with its content. Consequently, there was no documentation that deficiencies reported were corrected.

1999 Process Safety Management Audit - This audit was completed in May of 1999. Consultant costs associated with this audit totalled approximately \$387,693. The report contained findings and recommendations similar to the 1995 EPA Audit and the 1995 Safety Audit.

Key concerns included:

- unresolved recommendations produced from the hazard reviews and incident investigations;
- outdated operating procedures and operator training;
- inconsistent application, development and implementation of safe work practices;
- inaccessible or incomplete design records and equipment inspection records; and
- incomplete emergency response plan procedures, including alarms and evacuation plans.

1999 Program Assessment Report - This assessment of WASA's safety program was completed in June of 1999. Consultant costs associated with the assessment totalled \$70,522. The assessment covered five main categories. Scores were given in each of the categories with five being the highest rating and one the lowest. WASA's safety program received low grades in each of the five areas scored.

Injury/Incident Rates	1.0
Management Leadership & Employee Involvement	1.6
Work Site Analysis	1.3
Hazard Prevention & Control	1.8
Safety & Health Training	1.8

The Program Assessment made the following conclusions:

- The existing WASA health and safety program did not exist as a viable, comprehensive, and implemented program.
- WASA's Department of Occupational Safety and Health has historically been underfunded and severely understaffed.

- WASA did not function on a proactive level to establish a safety culture within its organization.
- WASA did not formally adopt safety policies and procedures into an accessible program manual.
- WASA's safety program manuals do not cover those safety elements necessary to meet OSHA regulatory requirements or industry safe practices.
- WASA lacks a formal record keeping system for training requirements and attendance for its personnel.

1999 Accident and Injury Claim Assessment – This study reported high incidence rates of occupational illnesses and injuries at WASA. The study gave low grades to WASA on five of the six programs evaluated including safety and prevention, and injury reporting. We have attributed the lack of training provided to workers, coupled with the unsafe work environment to have caused high rates of worker injuries and illnesses. WASA's costs related to workers compensation claims that exceed industry standards are estimated at \$741,000 for calendar year 1999. For the period April 7, 1998, to July 1, 1999, WASA's frequency rate of claims was 33 percent higher than the Standard Industrial Code (SIC)² benchmark for other waste management organizations in the nation and six times higher than the Business Market Benchmark for the District of Columbia and Maryland. In addition, WASA's loss rate per \$100 of payroll was almost 60 percent higher than the competitor benchmark and nearly five times higher than the District of Columbia and neighboring Maryland Business Market Benchmark. That is to say, for every \$100 of payroll, WASA expends \$.86 for related workers compensation and sick leave costs while other area businesses only expend \$.54.

The independent study addressed WASA's high costs of workers compensation claims and identified that some basic elements of an effective safety program that were missing. Among other things, the report recommended that WASA establish a safety committee, conduct monthly safety surveys within each department, develop a formal written safety program, and accurately report and investigate occupational accidents and illnesses. Our review of WASA's implementation of those recommendations subsequent to that report indicates that although WASA formed a safety committee, many of the other recommendations have not been implemented.

² Liberty Mutual compared D.C. WASA to a benchmark consisting of companies in two SIC Codes: 1) SIC Code 4941 (Water Supply: Distributing water for Sale for Domestic, Commercial, and Industrial Use) and 2) SIC Code 4942 (Sewer Systems: The Collection And Disposal Of Wastes Conducted Through Sewer System, Including Treatment Processes Across The United States).