

Regulatory Agency Findings

Excluding the two inspections conducted during the time period of our audit, we identified that the D.C. OSHA had performed 16 additional inspections of the Plant over the past 5 years. We obtained and reviewed copies of these reports. Additionally, EPA conducted a Chemical Safety Audit in 1995. Details of the deficiencies included in these reports follow.

D.C. Occupational Safety and Health Administration. The D.C. OSHA identified violations of a repeat nature during inspections at the Plant. Specific deficiencies noted include the following:

- inadequate safety and health program,
- inadequate facility and equipment maintenance/upkeep,
- unsanitary facilities and poor housekeeping,
- inadequate personal protective equipment (PPE),
- insufficient training/employee information program, and
- nonexistent Emergency Evacuation Plan and Hazardous Communication Plan.

These deficiencies were also repeated in WASA's 1995 Safety Audit, 1999 PSM Audit and 1999 Program Assessment.

D.C. OSHA only has three inspectors and is responsible for enforcing OSHA regulations at all District Agencies and local businesses. The D.C. OSHA is responsible for ensuring that WASA complies with regulatory requirements. However, due to the fact that D.C. OSHA can only make recommendations, these violations will continue. It is important to note that other State OSHA agencies to include Maryland and Virginia have enforcement powers to assess fines and penalties. We believe that if WASA were to have monetary fines imposed, reported deficiencies would more likely be corrected in a timely manner.

We were informed by D.C. OSHA representatives that during an inspection in 1997, a D.C. OSHA inspector was removed from the Plant. After media concerns of safety and health violations at the Plant surfaced in late 1999, D.C. OSHA, at the request of the Chairman of the District City Council's Chairman on the Committee on Public Works and the Environment, sent an inspector back out to the Plant to perform an assessment of reported conditions and to follow-up on deficiencies noted in its previous reports. During this inspection, WASA worked cooperatively with D.C. OSHA inspectors

Environmental Protection Agency. A Chemical Safety Audit conducted by EPA in 1995 identified findings and recommendations pertaining to facility ventilation, alarm characteristics (audible and visual components), sensor maintenance, emergency response plan, hazard communication, and training.

WASA Labor Unions

The WASA Labor Unions (union) had informed WASA of safety and health related deficiencies and had repeatedly requested management to take appropriate action to correct them and, at a minimum, to meet with union representatives to discuss them. Such issues include identification of safety and health violations at the Plant and lack of required personal protective equipment (PPE) and training provided to employees. To our knowledge, these issues still remain unresolved. As a result, the union filed a grievance against WASA. The following are details of correspondence between WASA management and union representatives for the period August 13, 1996, to November 22, 1999.

- On August 13, 1996, the union presented WASA management with a hazard assessment and personal protective equipment listing by facility. The hazard assessment contained 27 pages detailing 66 observations of OSHA General Industry Code Violations.
- On March 18, 1999, after a lapse of approximately three years, the unions filed a grievance against WASA. We were informed by union officials that the grievance resulted from WASA's poor track record in regards to resolving employee safety and health issues and because WASA's General Manager had chosen not to meet with union officials to discuss reported safety issues. The unions specifically wanted to address safety issues with WASA's General Manager because they wanted acknowledgement of deficiencies and a commitment from the highest level of WASA's management that appropriate actions would be taken.
- On April 16, 1999, safety grievance meeting notes recorded that a meeting between union officials, the Human Resources Director and the Acting Safety Director was adjourned before safety discussions began because the General Manager, who had requested the meeting through a March 31, 1999, memorandum, refused to attend.
- On, September 29, 1999, union representatives wrote to the Chairman of WASA's Board of Directors to request a meeting to discuss the safety concerns formally transmitted to WASA management on August 13, 1996. The memorandum emphasized that the union had no intention of discussing WASA contract negotiation issues but rather they wanted to discuss safety concerns.
- On October 7, 1999, the Chairman of WASA's Board of Directors declined to meet with the union representative to discuss safety concerns. In part his response stated:

I believe that it may be difficult to separate our discussions of employees' legitimate concerns about WASA operations from the advocacy of union versus management positions....I have been advised that the issues related to Safety Concerns in WASA, are the subjects of formal union grievances that are pending adjudication or decision under the collective bargaining agreement. In my view, the best course is to decline to discuss such matters while they are still in dispute.

- On November 22, 1999, WASA's General Manager requested that union officials submit all outstanding safety grievances to WASA by November 24, 1999. WASA stated that it would subsequently hold a meeting with union leaders to provide detailed responses to issues within 10 workdays, to include planned remedial action steps and assessments of the priority that will be assigned to each bona fide safety issue presented. Union officials informed us that as of the end of May 2000, over six months later, WASA had not provided a response to union safety issues nor had they met with WASA management or Board members.

In a D.C. Council hearing held on December 1, 1999, the Chairman of the Committee on Public Works and the Environment asked WASA and union representatives to separate safety issues from labor negotiations and resolve safety issues. Based on this directive, WASA tasked the Employee Relations' Manager to meet with union representatives to resolve the safety issues. The Employee Relations' Manager informed us that he has had ongoing dialogue with union representatives but no formal actions have been taken. During our audit, we learned that critical operator safety issues are now being addressed principally in the context of labor/management discussions, but with apparently unproductive results.

2. OCCUPATIONAL SAFETY AND HEALTH REQUIREMENTS

We determined that there is a general lack of awareness or adherence to OSHA requirements at the Plant. Although WASA has taken steps to develop programs and processes to ensure compliance with OSHA standards, many of these programs have not been implemented. WASA officials contend that they have made significant progress in meeting OSHA requirements. WASA officials stated that they have developed several policies and procedures, have conducted several training classes, and have hired key personnel in the Occupational Safety and Health Department to aide in further implementing its safety program. Additionally, WASA hired a consultant to assist in meeting OSHA standards and to address other critical areas of WASA's safety program. However, without the implementation of policies and procedures and adherence to programs and processes, workers are prone to injury because they may not know what to do when faced with an emergency situation or do not have the equipment, training, or knowledge to adequately perform their job duties in a safe manner.

Section 1910.119 of Title 29 of the Code of Federal Regulations (CFR) identifies the OSHA requirements of Highly Hazardous Chemicals. These standards define the roles and responsibilities of employers to ensure that the safety of both plant and contractor employees are considered. The OSHA standards serve as the most comprehensive list of safety programs and procedures. Additionally, PSM for wastewater treatment plants is designed to help the plant function safely.

The WASA PSM Program as described in its PSM Manual contains a description of all fourteen OSHA elements at the Plant. Our review of these two documents identified that workers, in many cases, were not aware of its existence. In addition, none of the

procedures in the manual were dated and many of the sections of the manual were not numbered to ensure completeness. Finally, there was no assignment of specific responsibility (e.g., name, job title, etc.) in many of the PSM procedures with regards to administering, implementing or enforcing a given procedure.

Using the OSHA standards, we reviewed WASA's safety program. We interviewed WASA management, employees, contractors and members of the consulting firm that performed the initial Program Assessment of WASA's safety program to determine what progress had been made since its previous Program Assessment conducted in June of 1999 or its Process Safety Management Audit conducted in May of 1999. The consultant who performed the 1999 Program Assessment informed us that little progress had been made and that many of the deficiencies noted still exist at the Plant. Further, he stated that if the same study were conducted in March of 2000, WASA would still not receive passing grades. Our conclusions mirrored those previously reported by the consultant and confirmed the consultant's opinion, i.e., we could not identify any significant progress made by WASA to meet established requirements. Despite the claims by WASA's General Manager, his Deputy and the Director of Occupational Safety and Health that significant progress had been made, we were unable to find adequate support that would lead us to conclude that WASA would currently receive passing grades.

The following is a brief discussion of the nine OSHA standards we reviewed and our observations.

Employee Participation

WASA officials could not provide adequate documentation to support their claim that they consulted with operating personnel to develop and conduct process hazard analysis or other OSHA elements required under this standard. Additionally, process hazard analysis and other safety policy related documentation was only accessible to employees on weekdays during operating hours of the Safety Office. See Exhibit A for specific CFR requirements.

Process Safety Information

WASA had existing documentation prepared over the past five years by both outside consultants and by the WASA Occupational Safety and Health Office. The documentation addressed specific areas such as its PSM Program, Emergency Operating and Response Plan and several iterations of its Safety Manual. Although documents were available in the Occupational Safety and Health Office, there was no indication that documents are readily available in other departments. The existing Program Manuals do not cover all safety elements necessary to meet OSHA regulatory requirements or industry safety practices. See Exhibit A for specific CFR requirements.

During our inspections of Plant buildings, we determined that material safety data sheets (MSDS) for selected hazardous chemicals were not posted at the entrance to Plant building as required. Management stated that they had provided MSDS

to all employees who work in process areas. However, MSDS sheets are to be maintained in buildings that contain hazardous chemicals so that persons entering a building in the event of a chemical leak or spill are aware of the chemicals they may encounter upon entrance, how to handle such chemicals, and how to treat injuries caused by contact with those chemicals.

Additionally, one of the basic findings in WASA's 1995 Safety Audit and 1999 PSM Audit was that WASA did not have a formal written safety program. The report recommended that WASA put in place a formal written safety program so that managers, supervisors, and employees can use the program as a reference for controlling safety hazards within their areas. A formal written safety program was still not in place.

Process Hazard Analysis

WASA did not adequately address deficiencies noted in previous process hazard analyses. Our review identified hazard assessments for chlorine, sulfur dioxide, and sludge digester systems were performed in 1999. However, it was reported in the 1995 EPA Audit and again in the 1999 PSM Audit that the process hazards analysis performed on the chlorine systems failed to address all of the issues required by OSHA and EPA. Missing assessments included an analysis of human factors, facility location and previous incidents. To our knowledge, these hazard assessments were not updated or revised as recommended. Additionally, many of the 182 recommendations resulting from these audits have not been addressed. Management stated that they are in the process of updating all process hazard analysis at the Plant, and with the implementation of the CIP the use of chlorine would be eliminated within the next 6 to 10 years, making this deficiency no longer an issue. See Exhibit A for specific CFR requirements.

Due to the hazardous nature of chemicals at the Plant, OSHA standards require employers to perform an initial hazard analysis to identify, evaluate, and control hazards involved in the wastewater process. At least every five years, after the completion of the initial process hazard analysis, the analysis is to be updated and revalidated on a routine basis to ensure that it is consistent with the current process. Additionally, employers are required to establish systems to promptly address findings, prepare a written plan for completing actions, and communicate the results of the evaluation and planned corrective actions to all workers at the plant.

Operating Procedures

WASA did not promulgate any safety policies or procedures. WASA management stated they have approximately 50 safety-related policies currently under review. They stated that the process is slow and takes extensive time. We noted that safety policies had been drafted and under review some for more than one year. Policies provide the structure for administering a safety program. Without them, employers' and employees' roles and responsibilities may be unclear, a situation which could result in accidents or injuries in the work environment.

Training

Our review of the Safety Training Program at WASA identified the following deficiencies. Specifically, WASA:

- (1) did not have a formal recordkeeping system for tracking training requirements and attendance that would ensure:
 - a) required initial, safety, job related, or refresher training had been conducted;
 - b) certifications for safety training had been properly monitored and kept current;
 - c) employee data, as it relates to safety classes completed for grandfathered employees, had been documented; and
 - d) safety training and related records for contractors had been obtained and reviewed and properly maintained;
- (2) did not have adequate safety training schedules;
- (3) did not conduct the required number of safety training courses to meet established requirements; and
- (4) did not utilize cost effective measures to provide safety training.

See Exhibit A for specific CFR requirements.

Additionally, we determined that WASA had not expeditiously filled critical vacancies. WASA did not hire a Training Director or Director of Occupational Safety and Health for more than two years after the positions were established. These job positions are critical to ensuring that a safety program is adequately implemented in order to lessen the impact of potential hazardous working conditions at the Plant.

After WASA's restructure in September of 1996, organizational charts identified the creation of a Training Director. However, the advertisement to fill this position was not issued until October 11, 1998. The Training Director was hired in March 1999.

The OIG questions the significantly long delay in advertising and subsequently filling of this vital position and believes management's delay in filling this position contributed to the lack of sufficient training of workers. Studies show a direct relationship between the lack of training and illnesses and injury rates. Results of such studies concluded the following.

A pilot study conducted for one year at the Hampton Roads Sanitation District (HRSD), James River Treatment Plant, in Newport News, Virginia concluded that on-the-job injury rates decreased by 75 percent after plant workers completed job related training courses. Based on these remarkable results, eight other wastewater treatment plants and one compost facility with the HRSD implemented similar training programs. After 5 years it was reported that on-the-job injuries decreased an average 68 percent at each location.

Additionally, other functional areas that have not been properly staffed at WASA but are essential to the implementation and monitoring of the safety environment at the Plant include a safety trainer, occupational nurse, and field technicians. Recommendations in previous reports identified the need for the establishment of these positions. Additionally, the Director of Occupational Safety and Health has repeatedly requested funding for these positions. These requests have all been denied.

Lastly, it was also reported in the PSM Audit conducted in 1999 that training records were not computerized and documentation of initial training provided to new employees or acknowledgement that experienced operators were grandfathered through certifications was not maintained.

A deficient training program may well be the cause of the following identified deficiencies, many of which could affect WASA operations.

Safety Training Courses. WASA did not conduct the required number of safety training courses to meet established requirements. The OSHA criteria identified 58 safety-training classes recommended to assure safe and healthful working conditions. Our review of training documentation and class attendance records revealed that WASA planned to conduct 14 safety classes between January and March 2000. We determined that only 2 of these classes were held, and only 23 employees attended. The Director of Occupational Safety and Health stated that the remaining classes were cancelled until the second quarter of FY 2000 to allow the contractor tasked with conducting the classes the opportunity to formulate training plans and appropriate schedules. Additionally, training records reviewed for the period June 1999 to December 1999 disclosed that WASA conducted only 9 of the 12 scheduled classes.

In an attempt to evaluate the number and types of safety training provided, we requested a listing of training that would be specific to each job title so that we could verify that employees with certain job titles or in a certain target audience had received the corresponding safety and job training associated with their job description/duties. We also attempted to determine the total number of employees that training should be provided to categorically.

The Occupational Safety and Health Director provided a list of training for certain target audiences that met the criteria and classifications defined by OSHA. However, the listing did not provide clear-cut delineation of training by job position or classification, nor did it identify the names or how many employees were in each target audience. Without defining the number of employees in each target audience, WASA cannot determine the adequacy of the training provided to each WASA employee. Therefore, the risk of having employees not receive adequate safety and job related training is increased; there is also a greater possibility of

providing inconsistent training among employees performing the same duties.

The following further illustrates the lack of training at WASA. In a June 17, 1999, Risk Management Report submitted to EPA, WASA stated that all of its employees are required to attend Release Prevention Program³ Training. WASA training records showed that, as of March 2000, only about 23 percent or 140 of the 653 employees identified as working at the WASA facility had attended Release Prevention Program Training.

Safety Training Costs. WASA did not use cost effective measures to provide safety training. For the period June 1, 1999, to March 31, 2000, WASA expended approximately \$156,000 for safety related training for 693 persons. The same persons could have been provided comparable training at a cost of \$6,930 (\$10 X 693 workers) which would have saved WASA over \$149,000. These savings can continue to be realized.

In May of 1996, the former General Manager of WASA entered into a memorandum of understanding (MOU) with the American Federation of State, County and Municipal Employees' (AFSCME) Training and Education Institute (ATEI) to develop and provide effective occupational/environmental safety and health training. In the MOU the ATEI stated that it would provide training to WASA employees at a cost not to exceed ten dollars (\$10) per person. ATEI's fee would also include all materials associated with conducting the training, developing training plans and schedules, and providing any other training related supplies. Courses offered are identical to those provided by consultants and cover many of OSHA's requirements.

Union representatives informed us that in 1997, ATEI began providing training under the MOU, but shortly thereafter, WASA's Assistant General manager informed ATEI representative that WASA was no longer interested in continuing the MOU and WASA began utilizing contractors to conduct training. When we questioned the Training Director, he was unaware of any MOU with the AETI to conduct training.

Safety Training Schedules. WASA did not have adequate safety training schedules. WASA's training schedules do not identify required classes by position or extend far enough in advance to ensure that all persons receive required training or have adequate notice to attend.

³ Release Prevention Program Training includes instruction on the proper handling, storage and use of chemicals to ensure a safe work environment.

Management Information System (MIS). WASA did not implement an adequate MIS to monitor, track and record training. Without an adequate MIS, the Training Department cannot readily determine what training an employee or contractor has received or what training is required.

Currently, the Training Department is compiling spreadsheets to track training attended by WASA employees. The training database consists of class attendance sheets reproduced onto electronic spreadsheets. Class attendance sheets maintained identified such elements as the name of the training course conducted, date, name of participant, and in/out status. Electronic spreadsheets generated from these attendance sheets do not contain required data elements that would readily allow the Training Department to determine, by class, job description, or individual, the training required, conducted or received.

In discussions with WASA management, they concurred with the deficiencies identified above and cited critical vacancies in the organization as the cause. WASA explained that they have now hired Directors for the Training Department and Occupational Safety and Health Department and that much progress has been made on establishing a WASA Training Program. WASA also purchased a new software package designed to capture pertinent training data and generate management reports. Implementation of this new system is anticipated by the end of FY 2000.

Contractors

Our audit disclosed that WASA did not have documentation to support that its contractor safety program had been implemented at the Plant. Specifically, there was no evidence that WASA had ensured that contractors were adequately trained, that contract performance was monitored, or that contractors were informed of hazardous conditions or chemicals at the Plant. Our review of WASA's Program Safety Management Manual disclosed that it contained a very comprehensive Contractor safety program that addressed all OSHA requirements. The program consisted of contractor evaluations and related safety and training information. However, we could not find any indications that any of these forms were used or identified processes were followed.

Contractor Monitoring. We were informed that contractors were monitored either by WASA Safety Office personnel or WASA contractors hired specifically to monitor WASA construction contracts. Persons tasked with monitoring contractor performance were unable to provide adequate documentation to substantiate that the OSHA elements of this standard were being adhered to.

Additionally, persons in WASA's Safety Office and WASA contractors hired to monitor construction contracts informed us that contractor safety programs and related data are to be reviewed by WASA's procurement office prior to the award of a contract. This review would ensure that contractors are properly trained and are informed of the hazards related to

performing their duties. Procurement personnel stated that it was the responsibility of the Safety Office to provide training to contractors and notify them of the hazards associated with the performance of their job. As a result of this confusion, no prior reviews of contractor safety programs or related data were performed.

Contractor Notifications of Hazardous Materials. There was confusion at WASA as to who or what department was responsible for providing contractors with information related to hazardous materials at the Plant. WASA Safety Office personnel stated in one instance that contractors were responsible for supplying their employees with information related to hazardous materials at the Plant; others felt this was the responsibility of WASA's Safety Office, or WASA contractors hired to monitor construction activities. In discussions with various contractors they stated that they were not informed of the possible effects of the hazardous chemicals at the Plant.

Contractor Training. WASA could not provide adequate documentation to ensure that contract employees were properly trained. The WASA Training Director and Director of Occupational Health and Safety stated that they did not maintain documentation of training provided to contractors nor could they agree as to whether the training was to be provided by WASA or the contractors' employer or even who had the responsibility to ensure that contractors had received proper training.

Accident Investigation

WASA did not investigate all accidents at the Plant. Occupational injuries are defined as injuries or illnesses which result in lost workdays or medical treatment administered by a physician, or by registered professional personnel under the standing orders of a physician. See Exhibit A for specific CFR requirements.

Our review of WASA's occupational injuries for the two-year period of April 1998 to April 2000 reported a rate of about one injury or illness for every eight employees per year. Medical and related sick leave costs averaged about \$1 million per year. These costs do not include costs associated with the first 21 days of an illness or injury. Costs for the first 21 days are covered under the District's workers compensation insurance payments. We estimate these claims to cost the District approximately \$100,000 per year, bringing the total of WASA's costs related to workers compensation to over \$1 million annually.

Additionally, our review of workers compensation disclosed that WASA had not accurately recorded all occupational injuries. For calendar year (CY) 1999, WASA's Risk Management Department documentation reported 125 occupational injuries. However, WASA's insurance company claim records identified 156 occupational injuries, thereby understating the number of injuries by 31 employees or about 34 percent. Additionally, for the period January 1, 2000, to April 18, 2000, WASA recorded

29 occupational injuries. Our review of related insurance company records identified a total of 50 reported injuries. Therefore, WASA understated its year-to-date injuries for CY 2000 by about 42 percent.

For the period January 1, 1999, through April 18, 2000, there were a total of 212 workers compensation accident claims submitted by WASA employees. Our review of the accident reports indicated that WASA failed to investigate more than 95 percent of those accidents. According to our review, only 9 of the 212 workers compensation claims had been investigated. Details of the claims reported and accident reports filed follow.

<u>Period</u>	<u>Claims Filed</u>	<u>Accident Investigations Conducted</u>
Calendar Year 1999	162	6
January 1, 2000 to April 18, 2000	<u>50</u>	<u>3</u>
Total	<u>212</u>	<u>9</u>

Risk Management personnel explained that an accident report is not always completed and that often when an employee is injured, the employee contacts WASA’s insurance company directly rather than going through its Risk Management Department. Further, personnel in WASA’s Risk Management Department had not reconciled its records with data from the insurance company. However, without controls in place to investigate claims, there may be an increased risk for the submission of false claims or insufficient information to mitigate future accidents.

It was also reported in the PSM Audit conducted in May of 1999 that WASA was not investigating accidents to determine root causes in order to establish controls to reduce or prevent recurrence.

Emergency Planning and Response

WASA’s Emergency Response Plan was not reviewed annually as required and has not been updated since 1995. Additionally, responsible WASA officials could not provide documentation that they had designated and trained a sufficient number of persons to assist in the safe and orderly evacuation of employees in the event of an emergency.

Our review of WASA’s Emergency Response Plan identified the following deficiencies.

- Position titles of responsible emergency personnel contained in the emergency response plan were no longer valid.
- Individuals listed as emergency response personnel were no longer employed at WASA.
- Telephone numbers of emergency personnel listed in the Plan had either been disconnected or were not in service.

- Inventory of SCBA equipment was either missing, in the wrong location, or contained less than the required 20 minutes of air supply.
- The plant alarm system, which is required to be tested every three months, was not operational and there was no documentation to indicate that it had ever been tested.
- WASA did not provide training classes on Emergency Response procedures to its employees.

Additionally, WASA's Emergency Response Plan requires an emergency kit to be mounted under the rail car at each of WASA's two Chlorination/Dechlorination Buildings. We observed that these emergency kits did not contain the required tools necessary to turn off liquid chloride or sulfur dioxide in the event of a leak or spill. The kits contained only rusted metal pieces. The picture on the right is an inside view of the kit located at the chlorine railcar outside the Chlorine 1 Building. The kit located at the Chlorine 2 Building was also empty.



The PSM Audit conducted in 1999 identified the following deficiencies in WASA's Emergency Response Plan:

- plant alarm not functional,
- no evacuation routes,
- no medical surveillance program,
- plan training last conducted in 1995,
- several missing SCBAs, and
- safety equipment not adequately maintained.

Lastly, the 1995 EPA audit reported that WASA did not have a written emergency evacuation plan and recommended that an emergency evacuation plan be developed and tested. We could find no documentation that this had been done.

During our audit WASA management initiated action to update its Emergency Response Plan.

Compliance Audits

As previously noted, WASA conducted a PSM Audit of its safety program in June of 1999. However, no documentation was available to verify that a compliance audit had been previously performed. Additionally, we could not find adequate support for actions taken in response to recommendations resulting from the audit. See Exhibit A for specific CFR requirements.

3. SAFETY AND HEALTH VIOLATIONS

WASA did not make the safety and health of its employees a top priority. WASA's Department of Occupational Safety and Health has historically been under funded and understaffed. WASA needs to fund this department adequately so that the necessary resources (i.e. staff and equipment) can be acquired and maintained. WASA's lack of commitment to its safety program is evidenced by the numerous safety and health violations identified and the fact that WASA did not function on a proactive level to establish a safety culture at WASA. As a result, WASA's costs related to workers compensation claims that exceed industry standards are estimated at \$741,000 for calendar year 1999. We have attributed the lack of training provided to workers, coupled with the unsafe work environment, to have caused significant increases in worker injuries and illnesses. Costs such as these can continue each year until WASA meets industry standards.

We observed numerous safety and health violations at the Plant. Additionally, WASA has a history of reported safety and health violations that have gone uncorrected. Reasons for these conditions provided by WASA management, employees and contractors included lack of support of the safety program from top management, the infancy of the development of the safety program, and management's focus on its CIP. This condition causes the perception by workers and contractors that management is not concerned with their safety and health. WASA management stated that the current culture of the workers does not include a sense of ownership or commitment to keeping the Plants' buildings and grounds clean and safe.

Section 5(a)(1) of Public Law 105-241 requires employers to furnish to each of its employees a place of employment free of recognized hazards that are causing or are likely to cause death or serious physical harm. This law establishes WASA's general and overall responsibility for the safety, health, and welfare of WASA and contract employees. Additionally, WASA's Master Agreement on Working Conditions with its unions prohibits an employee from being required to work in unsafe or dangerous conditions until such conditions have been removed, remedied, rendered reasonably safe or adequate protection is provided for the condition encountered.

We conducted inspections of the buildings and grounds at the plant with the assistance of D.C. Fire and EMS, MPD's Environmental Crimes Protection Unit, and D. C. OSHA Inspectors. We observed health, safety, and environmental violations in the Grit Chamber, Chlorine, Maintenance, Excess De-chlorination, Nitrification Control, Nitrification Blower, Lime, Solids Processing, Chemical, and Chemical Laboratory Buildings. Due to the seriousness of these conditions, we issued two Management Alert Reports (MARs) in order to notify WASA management so that appropriate corrective action could be taken in a timely matter. Additionally, violations identified by D.C. OSHA and D.C. Fire and EMS personnel were also noted in separate reports that are included as exhibits to this report. Identified conditions are discussed below.

OIG MAR 00-A-06, dated February 7, 2000

This MAR was issued after our initial observations were made of the Plant grounds and buildings. The MAR identified potential safety and health issues in the Chlorine 1 Building, Lime Building, and general related observations plant-wide.

OIG MAR 00-A-09, dated April 28, 2000

This MAR reported the results of our observations and tests that identified unsafe drinking water due to high lead concentration at four locations and unsanitary bathrooms/inadequate facilities and supplies for employees to wash their hands in the event that they are exposed to hazardous chemicals or fecal matter at 10 locations.

D.C. OSHA Report of Violations

The D.C. OSHA Inspector conducted an inspection on February 25, 2000. The initial assessment identified 15 serious violations in 3 separate buildings. A follow-up inspection was performed on April 5, 2000, to determine whether the initial deficiencies had been corrected. In addition to performing a follow-up on the initial reported deficiencies, D.C. OSHA inspectors reported 3 deficiencies relating to water samples taken at the request of the OIG Auditors.

As discussed previously, D.C. OSHA does not have enforcement powers to assess penalties. However, WASA is subject to review by federal OSHA authorities. Using federal OSHA guidelines for assessing penalties, fines associated with these reported violations hypothetically could have exceeded \$126,000. Furthermore, because the identified deficiencies that were not corrected by the agreed upon date, WASA could be subject to additional penalties totalling \$567,000. Lastly, we believe that many of the identified deficiencies still remain unresolved and, as such, could carry penalties of up to \$7,000 per day until they are resolved. Based on this guideline, WASA could be subject to fines totalling in excess of \$2,968,000 through the period July 20, 2000. We believe that if the D.C. OSHA had the power to levy and collect fines, these deficiencies might have been resolved.

D.C. Fire and EMS Report of Violations

The D.C. Fire and EMS Inspector reported 123 fire code violations in the Chemical laboratory, 12 violations in the Chemical Building, 11 violations in the Chlorine Building, and 10 violations in the Grit Chamber Building that posed a significant hazard to employees.

WASA did not take action on all of the items cited in these reports, and some actions taken did not adequately resolve the reported conditions. The following is a discussion of observations made during the course of our audit.

Protective Equipment

WASA operators and contract employees were not provided or did not have access to adequate personal protective equipment (PPE). PPE includes such items as protective clothing and shoes, glasses, and breathing equipment. WASA management stated that they are not responsible for providing PPE to contractors and that employees have not informed them of their needs for such items.

According to OSHA regulations, the employer is responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions. See Exhibit A for specific CFR requirements.

Protective Clothing. At the onset of our audit, we observed that WASA operators and contractors working in the Lime, Grit Chamber, Solids Processing, and Chlorine Buildings did not wear adequate PPE. WASA employees and contractors were wearing cotton-breathing filters and porous trousers, gloves, and footwear. Additionally, they were not using ear protection or safety glasses.

Specifically, we observed employees and contractors working in the Grit Chamber Building who were exposed to blood borne and airborne pathogens and may have come in contact with such items as feminine toiletries, needles, blood, prophylactics and human waste and excrement.

We also observed employees that did not wear proper respiratory protection or PPE while performing work duties in the Solids Processing Building. Employees at this location are exposed to strong odors of ammonia and nitrogen and biological irritants. Employees are required to take water samples from areas that may bring them into contact with biological agents, had not been issued impervious gloves to take those samples. Additionally, WASA employees working in the solids processing building have reported several cases of dermatitis.

Self-Contained Breathing Apparatus (SCBA). We observed and reported to WASA management that SCBAs were not available at many locations identified in WASA's Emergency Response Plan⁴. We also noted that WASA was not refilling SCBAs when they fell below the 20-minute requirement, employees were not receiving adequate SCBA training, and SCBAs were not being routinely inspected.

⁴ An Emergency Response Plan sets forth policies and procedures to be followed in the event of a chemical leak or spill.

WASA's Emergency Response Plan contained inventory locations of SCBA and Spare SCBA Air Bottles needed in an emergency. Our inventory of available SCBA's found that more than half (8 of 13 locations inspected) were missing or did not contain minimum amounts of oxygen. WASA officials stated that many of the SCBA locations identified in the Emergency Response Plan were not required and added that they were in the process of updating the Emergency Response Plan to reflect appropriate designated areas.

On the right is a picture of the SCBA cabinet in the Solids Processing Building. The cabinet, designed to contain emergency breathing apparatus, contains plastic cups used by Plant operators to take water samples. After our inventory in this building, rather than providing a SCBA as required, WASA officials removed the cabinet.



Respiratory Protection Program

WASA could not provide any documentation to demonstrate that they have developed or implemented a Respiratory Protection Program as required by 29 CFR § 1910.134. The elements of an effective program include the following.

- Procedures for selecting respirators for use in the workplace;
- Medical evaluations of employees required to use respirators;
- Fit testing procedures for tight-fitting respirators;
- Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations;
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
- Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;
- Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and
- Procedures for regularly evaluating the effectiveness of the program.

Whether for confined space entry, for change-out of chlorine cylinders or tank cars, a Respiratory Protection Program is required. We noted numerous instances in which WASA employees did not use a respirator as required.

For example, on the right is a picture of an operator switching a sulfur dioxide tank without utilizing the proper respiratory protection or personal protection equipment.



During a D.C. Council hearing before the Committee on Public Works and the Environment held on December 1, 1999, WASA's Chief Engineer stated that the Lime Building had been designated as a full face mask area. We observed that lime dust was so dense that visibility was limited. Additionally, WASA's Safety Officer, the D.C. Fire and EMS Inspector, D.C. OSHA Inspector and WASA union representatives concurred that persons working in the Lime Building should be utilizing a respirator or some type of breathing apparatus. However, no warnings or notifications to this effect had been posted in the building, and we were unable to locate any SCBAs in the Lime Building. It wasn't until after our repeated notifications to WASA management that we observed contract personnel in the Lime Building wearing appropriate PPE.

Moreover, the Safety Officer and the Deputy Safety Officer observed the contractors working without proper respiratory protection and PPE in the Lime Building. Two weeks after the observation, the contract employees still had not been provided with adequate respiratory protection or personal protection equipment, and an incident occurred in which the contract employee had to be sent home as a result of lime burns.

The contractors informed us that they had not been provided any safety or hazard training concerning lime or personnel protective equipment, nor were they provided with adequate respiratory protection equipment or clothing safety equipment from their employers. The Training Manager stated that WASA was not responsible for training contractors. Further, the Training Manager stated that contractors were supposed to have all the requisite safety and job training for the task the contractor has been contracted to perform.

Ventilation

We noted that several buildings at the Plant had inoperable or inadequate ventilation systems. This was especially true of the Lime Building. According to WASA Board of Director's meeting notes dated June 5, 1997, it was reported that dust control system in the Lime Building was out of service and awaiting repair parts. For over 3 years, no action to correct this problem had been taken by WASA. It was also noted that the ventilation systems in the Grit Chamber and Chemical Buildings were not adequate. Again management conceded that the ventilation problems in these and other buildings would be eliminated with the replacement of buildings as the CIP progresses.

Confined Space

WASA did not properly identify confined spaces, did not ensure that WASA employees and contractors complied with confined space permit requirements, and did not maintain proper supporting documentation for confined space permits. WASA's Safety Director stated that confined spaces identified in WASA's Hazard Assessment Plan were not correct and that he was in the process of updating WASA's Hazard Assessment Plan. He

added that many departments maintained copies of permits and did not forward copies to the Safety Office as required.

WASA's Hazard Assessment Plan identifies over 200 confined spaces at the Plant. Each of these areas must be entered in order to perform routine work associated with WASA operations at least once a year. Using this as an estimate, at a minimum the Safety Office should have at least 200 permits on file for any given year. We reviewed the files and identified 26 confined space permits for the period January 1, 1999, to March 2000. The Director of Safety and Occupational Health explained that many of the areas identified in the current Hazard Assessment Plan no longer meet the criteria of confined space and, therefore, permits were not necessary. He attributed the lack of confined space permits to the fact that the electrical and engineering departments maintained their own confined space entry permits. In a review of the records maintained by these departments, none was found.

The OSHA guidelines and WASA confined space guidelines require a confined space permit to be properly completed, authorized by the Safety Officer, and maintained in the Safety Office. Before entering a designated confined space, employees and contractors are required to perform an assessment of the area, obtain necessary personal protective equipment, and ensure that they are properly supervised.

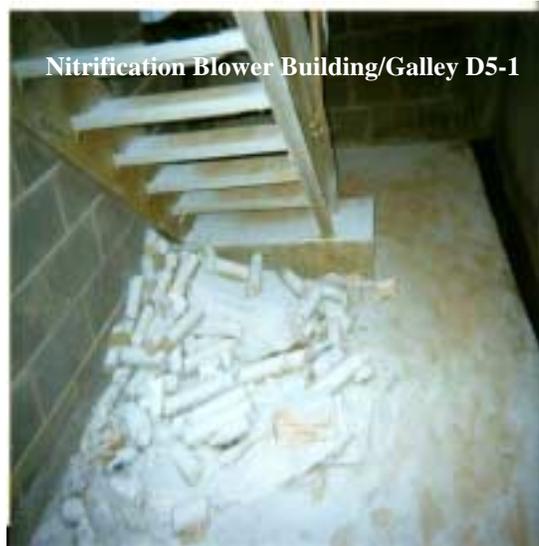
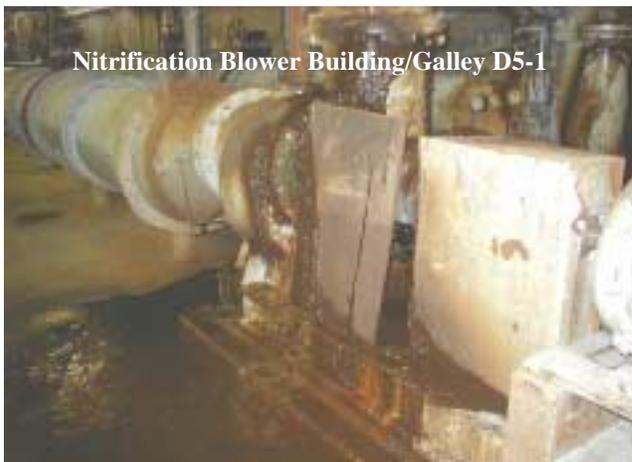
During one of our inspections, we observed a contractor working in a confined space in the Grit Chamber Building containing toxic sulfur fumes. We noted that the person in question did not have a properly completed confined space permit and was not wearing proper PPE. The Safety Director stated that the area in question was not classified as a confined space. However, the Safety Officer informed us he had extensive discussions with the contractor's employer regarding the use of proper PPE and adherence to confined space regulations. In discussions with D.C. Fire and EMS officials and D.C. OSHA Officials, they identified the Grit Chamber Building as a confined space requiring a permit, as did WASA's Hazard Assessment Report.

Housekeeping

We conducted walk through inspections of several buildings at the Plant. Numerous safety and health violations were noted. We concluded that overall the buildings and grounds were not kept clean. The general condition of the buildings and grounds demonstrate the lack of a proactive safety program. See Exhibit A for specific CFR requirements.

Examples of poor housekeeping ranged from unsanitary restrooms and the lack of basic toiletries to sewage deposits and sewage tainted materials and other trash and debris scattered throughout the Plant. We also found that cobwebs infested the facilities and noted that worker compensation claims have been filed for spider bites. Deficiencies observed could be identified by a layman and had obviously existed for a substantial period of time; some for several years. We believe that these conditions will continue to exist until WASA adopts a formal proactive safety program that involves plant operators and management personnel.

The following pictures further illustrate our observations of the poor housekeeping throughout the Plant.



Chemical Laboratory B5-2 – During inspections of this building, the D.C. Fire and EMS inspector informed us that the laboratory was the worst laboratory he had ever inspected. We observed that overall the Laboratory was not well maintained. Stored immediately inside the building was an acetylene tank. A leak from that tank could have destroyed the entire building. Additionally, we observed impediments to egress resulting from stored items, chemical spills and chemical residue on the counter tops and cabinet handles and on eye wash stations. Outdated acids were stored haphazardly and commingled with chemical bases. The floors were not mopped regularly and dead birds were observed in stairwells.



These conditions were reported in our February 7, 2000, MAR. In response to our MAR, WASA immediately removed the acetylene tank to an outside storage area, properly stored remaining chemicals, destroyed outdated chemicals and suspended operation in the Laboratory for one week to perform housekeeping duties.

Lime Building C4-4 - We observed 3-4 inches of standing water in the basement drains which were clogged from lime build-up. In the immediate area there were electrical devices and pumps being used. We also noted that the operators in the building were using a portable heater. Lime dust is extremely flammable when exposed to heat. Additionally, the heater did not have a protective guard covering the red glowing heating elements. Operators could have been seriously burned had they come in contact with the heater.



Nitrification Control Building/Laboratory D5-3 – We identified that the roof in the lab, kitchen, and bathroom were leaking through or close to the light fixtures. The leak in the break room was over an electric stove counter top and can present an electrical shock hazard. Employees in this building stated that they had informed the building manager about these problems some time ago. Steps and stairwells were extremely dirty. The area above the stairway was cluttered and used as a storage area. Boxes of containers were also stored in the entrance hallway to the building. Bathroom facilities were not clean. Doors and door framing were off their hinges.



Nitrification Blower Building/Galley D5-1 – We observed trash in the stairwells and unsanitary restrooms. We observed faulty pumps spewing sewage, dried sewage deposits, sewage tainted trash, and pools of sewage on the floors in the Galley area. D.C. OSHA reported similar housekeeping issues to WASA in 1996. As a result of our inspections, WASA initiated action by janitorial services to clean the trash from stairways and halls, and to paint much of the building. However, broken pumps throughout the galley area still remain and continue to be a health and safety problem.



Chlorine Building 1 B3-4 – We observed that restrooms were unsanitary and not properly heated in the winter months. Additionally, soap and paper towels were not made available and cobwebs hung from the ceiling. After repeated notifications of these deficiencies, WASA initiated housekeeping in this building.

Chemical Building C7-9– We observed several leaks and spills of ferric chloride on the floors. Some of the leaks were being collected in 5-gallon buckets. We also observed dead birds and layers of bird fecal matter on the floors surrounding the tanks.



Railings, Grates and Catwalks

We observed numerous deficiencies with the condition of railings, grates, catwalks, and other similar areas at the Plant. Slips, trips, and falls are common mishaps in wastewater treatment facilities. In order to ensure that a safe work environment exists, areas such as these must be in proper repair, free of debris and other substances that may create slippery conditions or possible trip hazards.

For example, railings and grates in the Grit Chamber Building and East Primary Sedimentation area were missing, and others were loose. We also noted that a platform around the sedimentation tanks did not have any railings to prevent someone from falling off into the wastewater processes. Also, deteriorating, rotting wood was placed over an exposed opening, and other covers/entrance barriers were missing from openings around the sedimentation tanks.

Below are pictures of areas around aeration tank walkways. Plant operators are required to perform work in and around these areas.



Description: Exposed pipe presenting potential trip hazard/ Properly covered pipe preventing potential trip hazard

We observed that machine guards were missing or inadequate. Specifically, machine guards and covers to several pumps in the galleys and outside the solids processing area were missing. Safety studies have identified missing machine guards as one of the prime causes for accidents.

The following pictures show a pump with and without proper guards.



OSHA regulations require one or more methods of machine guarding to be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation. Additionally, railing should be placed where there is a risk of an injury resulting from a fall. See Exhibit A for specific CFR requirements.

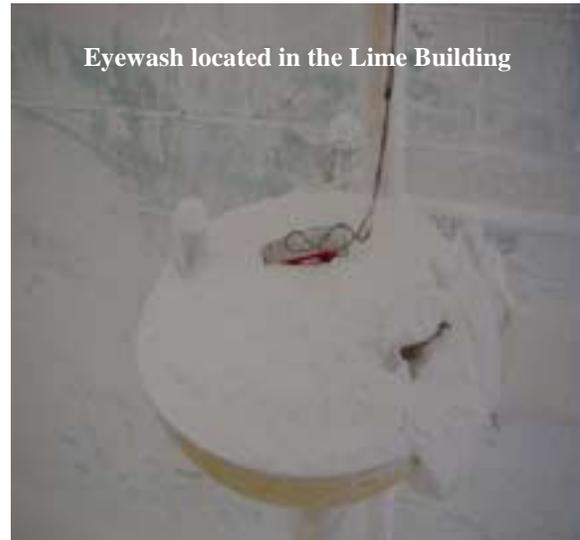
In the East Secondary Sedimentation area, a five-minute walk through that area identified 13 large pumps with missing chain guards. In the Nitrification Galley and Nitrification Reactor Area we observed pumps and other machinery with moving parts with missing guards/covers. We could not determine if guards were removed to perform maintenance work, were missing because maintenance neglected to reinstall the guards when the work was completed, or if the equipment is old and the parts had been broken or damaged and not replaced due to their age.



Eyewashes and Showers

Eyewashes throughout the Plant were not functioning or not properly maintained. Additionally, many of the eyewashes did not have caps over the waterspouts to prevent dust, dirt, chemicals, and other contaminants from entering. An employee would need to use an eyewash/shower to flush or rinse their eyes or skin with water if exposed to chemical or other contaminants.

During our inspections, we observed deficiencies with eyewashes and showers in the Lime, Chemical, Chemical Laboratory, Solids Processing, and Grit Chamber Buildings. For example, the basin of the eyewash located in the Lime Building was filled with lime and was inoperable. The eyewash and shower located outside of the Chemical Building was inoperable. In the Solids Processing Building, we observed numerous eyewash stations and eyewash showers that were inoperable. During one of our inspections, we noted that the eyewash located in the Grit Chamber Building was completely corroded and encrusted with bird feces. Additionally, the eyewash in the Lime Building was completely filled with Lime. We located portable, canister eyewash that required an electrical source. We could not find an electrical source in the proximity of the eyewash. When this was brought to the attention of the Safety Office, a new eyewash was installed at this location.



Potable water

WASA did not always provide potable water to its employees. Additionally, potable water, free of lead and other bacteria contaminants was not available at many Plant locations. Safe drinking water is especially important for employees who are required to remain at their work locations for the duration of their shift(s) and also in cases where employees work in high temperatures or who have prolonged exposure to heat. See Exhibit A for specific CFR requirements.