SUMMARY OF INVESTIGATION REPORTED TO THE BOARD OF DIRECTORS OF THE DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

Conducted Under the Direction of:

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I. Description and Purpose of the Report

This report is a summary of the investigation conducted by Covington & Burling ("Covington") at the behest of the Board of Directors ("the Board") of the District of Columbia Water & Sewer Authority ("WASA"). The report sets forth the facts that have been learned to date, through witness interviews and review of documents, regarding WASA's management of the lead monitoring process, pursuant to the Lead & Copper Rule ("LCR"), 40 C.F.R. §§ 141.80-141.91, from July 2000 to January 2004. The purpose of the report is to provide an independent, thorough review of the facts that are currently known, and to evaluate WASA's compliance with applicable regulations and the appropriateness of WASA's handling of lead monitoring.

As is described more fully below, this report was prepared by Covington attorneys in line with the scope set forth by the Board. In addition, in order to address fully the governmental and public health aspects of the lead matters, Kathryn Newcomer, Director of the School of Public Policy and Administration at George Washington University, and Dr. Lynn R. Goldman, a pediatrician and epidemiologist at the Johns Hopkins Bloomberg School of Public Health, were retained by Covington and have provided invaluable assistance in the preparation of this report.

II. Executive Summary

A. Scope of the Investigation

On March 4, 2004, WASA's Board of Directors charged Covington to investigate WASA's management of lead monitoring activities, beginning with the 2000-2001 lead monitoring period. Without placing any limitation on Covington's investigation, the Board asked Covington to focus in particular on a few areas of inquiry that were of significant concern to the Board and the public: (i) WASA's conduct in excluding or invalidating certain samples during the 2000-2001 monitoring period; (ii) WASA's collection and reporting of lead monitoring results during the 2001-2002 monitoring period and the actions WASA took in light of its exceedance of the regulatory lead action level ("LAL") in that monitoring period; (iii) WASA's public education efforts, initiated as a result of its exceedance of the LAL in the 2001-2002 monitoring period; and (iv) WASA's actions related to its lead service line replacement program, initiated as a result of its exceedance of the LAL in the 2001-2002 monitoring period. In completing its investigation and report, Covington considered these and other issues.

At the same time, in order to remain faithful to the scope of the report set forth by the Board, as well as to provide necessary boundaries on the amount of information that could be reviewed in a limited time frame, the report is not intended to address a number of other important lead-related topics that have received public attention over the last few months. Specifically, the report does not discuss decisions regarding water treatment, including past actions meant to address the corrosivity of the District's water or the decision by the Washington Aqueduct ("Aqueduct") to switch from chlorine to chloramines as a disinfectant for the District's water supply. Likewise, the report does not address WASA's efforts to respond to the issue of elevated lead levels after the publication of the January 31, 2004 *Washington Post* article that first alerted much of the public to the matters discussed in the report. Although each of these issues is important, they are distinct from the issue of lead monitoring, which is the subject that Covington was retained to investigate.

B. Nature of the Information Evaluated in the Report

In the course of its investigation, Covington has reviewed tens of thousands of documents, including e-mails and electronic documents, and conducted more than 20 interviews. The documents reviewed by Covington include both documents provided by WASA and documents obtained from other entities, including the United States Environmental Protection Agency ("EPA"), the District of Columbia Department of Health ("DoH"), the Aqueduct, and the District of Columbia Office of the Inspector General ("DCOIG"), either through informal cooperation with those entities or through Freedom of Information Act requests. Covington likewise conducted interviews with current and former WASA employees and Board members, as well as with other persons who might have relevant information, including several environmental and community advocates who have been vocal with regard to WASA's role in the lead monitoring process. These sources provided Covington with significant insight into WASA's lead monitoring activities since 2000 as well as into WASA's response to elevated lead levels.

Covington could not obtain access to all relevant sources of pertinent information, however. Several key witnesses declined Covington's request for an interview as part of its investigation. For this reason, Covington was unable to interview Seema Bhat, the former Water Quality Manager at WASA; employees of the DoH who had some connection to these lead issues; employees of the EPA who oversaw WASA's compliance with the EPA regulations; employees of the Aqueduct who worked with WASA during the lead monitoring process; and employees of Baker Killam, a joint venture that, as a WASA subcontractor, assisted WASA in both its public education efforts and lead service line replacement program that followed the 2001-2002 LAL exceedance. The EPA and the Aqueduct would only provide written responses to written questions posed by Covington, instead of permitting in-person interviews. This is regrettable. While documentary evidence — including deposition and trial transcripts, as well as the written responses from the EPA and the Aqueduct — helped to fill some of these gaps, such evidence is necessarily, in some respects, second-best.

C. Findings of the Report

Covington's investigation has led to a number of conclusions regarding WASA's lead monitoring efforts and its response to elevated lead levels since 2000. Due to both time constraints and limitations on Covington's access, these conclusions are necessarily preliminary. While limitations on Covington's access to a number of key witnesses constrained Covington's ability to resolve certain factual disputes conclusively, the resolution of these disputes is unnecessary to arrive at a number of conclusions regarding past shortcomings in WASA's communications, controls, and governance relating to its lead monitoring activities and its compliance with EPA regulations.

As discussed below, a confluence of factors contributed to WASA's difficulties in dealing with the lead-related issues discussed in the report, some within WASA's control and others not. Two central shortcomings at WASA played an important role regarding these issues: WASA did not have sufficient controls in place to govern the EPA compliance process and WASA failed to communicate effectively about lead-related issues both internally and externally. However, there were a number of other components necessary to the development of the events discussed in this report, including inadequate responses from other governmental entities:

- WASA employees making key decisions regarding the lead monitoring process — principally, the former Water Quality Manager, but also her supervisors and others — made mistakes and, at the same time, those employees themselves were not sufficiently supervised in making these decisions;

- WASA generally kept the EPA informed on many of the issues discussed below, but the EPA provided inconsistent responses and failed to raise significant concerns prior to early 2004, which materially contributed to WASA's difficulties;

- WASA's management made decisions to downplay some lead monitoring-related issues in its public communications;

- WASA's management failed to involve the Board sufficiently in making decisions on lead-related issues, decreasing the Board's ability to oversee WASA adequately on these issues;

- The structure of responsibility for decisions relating to water quality is dispersed among several different agencies and organizations — including the EPA, the DoH, the Aqueduct and WASA — yet there is no centralized mechanism for coordinating these decisions and sharing information;

- The other agencies involved in water quality issues — the EPA, the DoH and the Aqueduct — had a muted response after learning about the exceedance of the LAL in 2002, and, along with other governmental entities, missed opportunities to confront these issues earlier; and

- The requirements of the LCR do not effectively ensure public awareness of potential public health issues following an exceedance.

The convergence of these factors created the unfortunate situation in which the public was not adequately informed of the important issue of lead in the drinking water.

1. 2000-2001 Monitoring Period

According to the testing results that WASA reported to the EPA, WASA narrowly avoided an exceedance of the LAL in the 2000-2001 monitoring period. The fact that lead concentrations did not exceed the LAL during the period can, in large part, be attributed to the fact that five first-draw samples collected at the very end of the monitoring year were not included in the final results reported to the EPA. Each of these samples tested over the LAL, and, had they been included in the final report, WASA would have exceeded the LAL for the year. This would have triggered significant regulatory responsibilities for WASA and occasioned further scrutiny of the lead issue.

Covington could not confirm whether there was an appropriate basis to exclude these five samples from the reported results. However, the WASA employee responsible for the decision, Ms. Bhat, has provided shifting and inconsistent explanations for why these five samples were not included in the final results. This fact casts doubt on the basis for the exclusion of these samples and on the intent behind it. Moreover, Covington located no WASA records providing an explanation for Ms. Bhat's decision in this regard. These records were required by regulation to be provided to the EPA, but were not. In addition, Covington saw no documentary evidence to support Ms. Bhat's assertion that she informed the EPA verbally regarding her decision to exclude the samples.

It is also unclear whether Ms. Bhat informed her supervisors of the decision to exclude these five samples, or the rationale behind that decision, prior to the submission of the final results to the EPA. Both of Ms. Bhat's supervisors, Kofi Boateng, the Director of Water Services and Michael Marcotte, the Chief Engineer/Deputy General Manager, have indicated that Ms. Bhat did not explain to them that any samples had been excluded or invalidated until many months after the fact; this conflicts with Ms. Bhat's testimony on the point. Yet regardless

of whether Ms. Bhat informed her supervisors of the precise reason for the exclusion of these samples, both Mr. Boateng and Mr. Marcotte were made aware by Ms. Bhat, weeks prior to the submission of the final EPA results, that lead concentrations for the monitoring period appeared likely to exceed the LAL. During the following weeks, however, neither man questioned Ms. Bhat about the monitoring process, despite the significant ramifications that an exceedance could have both for WASA and the public. When Ms. Bhat ultimately provided the final results to her supervisors, which indicated that no exceedance had occurred, neither Mr. Boateng or Mr. Marcotte inquired into how WASA ultimately avoided the exceedance, or what had changed in the intervening weeks with regard to the nature of the lead monitoring results.

A few months later, a former WASA employee lodged a complaint with the DCOIG, alleging in part that WASA failed to report to the EPA all of the samples it had collected in the 2000-2001 monitoring period. As of the fall of 2001, the employee appears to have identified to the DCOIG the very five samples, described above, that Ms. Bhat did not provide to the EPA. The employee claimed that Ms. Bhat had improperly excluded these samples. The DCOIG requested and received the participation of an agent of the EPA Office of the Inspector General ("EPA OIG") as part of its investigation of the complaint, in order to assist with the interpretation of relevant EPA regulations. In addition, it appears that the EPA's main point of contact with WASA, George Rizzo, was aware of and provided information for the investigation. Despite this, after over a year-long inquiry into the complaint, DCOIG and EPA OIG ultimately concluded that the allegation was unsubstantiated. Despite the EPA's involvement, this conclusion was based in significant part on a misunderstanding of the nature of the data that had been provided to the agencies, and how that data related to the requirements of the LCR. In part because of this outcome, and in part because WASA was never made aware of the results of the investigation, no action was taken by WASA in response to the former employee's allegations. Nor does it appear that the EPA responded effectively after learning of the investigation. This constituted a missed opportunity to identify and address these important lead monitoring issues, years before the *Post* article sparked inquiries on the topic.

2. 2001-2002 Lead Monitoring Period

During the 2001-2002 lead monitoring period, lead sampling results began to exceed the LAL at an increasing rate. By the fall of 2001, WASA had collected a sufficient number of samples with lead concentrations above the LAL to conclude that the final results would almost certainly exceed the LAL overall for the monitoring period.

Ms. Bhat and Mr. Boateng do not agree, and the documentary evidence does not conclusively confirm, whether Ms. Bhat informed Mr. Boateng of the nature of these results prior to the summer of 2002. Yet according to the account of Ms. Bhat's supervisors, they did not make proactive inquires of her as to the progress of lead monitoring until near the end of the monitoring period. This came despite the fact that WASA had, according to the results it provided to the EPA, only narrowly avoided an LAL exceedance during the prior monitoring year. When Ms. Bhat provided her supervisors with the final monitoring results for the year in July 2001, it took nearly two weeks for Mr. Marcotte or Mr. Boateng to respond, reportedly due in part to their workload and in part to the low priority that WASA placed on lead monitoring at the time.

More significantly, no one informed WASA's senior management, its Engineering & Technical Services Division, its Public Affairs Office, or the Board of the fact that lead concentrations would likely exceed the LAL until the late summer or early fall of 2002. This delay deprived WASA of needed time to develop a plan of action to respond to the exceedance, including the instigation of efforts to distribute public education materials or to establish a lead service line replacement program.

The EPA, by contrast, was informed at least as early as March 2002 that preliminary results indicated that WASA would likely exceed the LAL for the year. Indeed, there is indication that Mr. Rizzo of the EPA was aware as early as August 2001 of the possibility of an exceedance during the monitoring year. The agency appears not to have significantly engaged WASA regarding the issue, however, until after the final lead monitoring results for the year were reported to it at the end of August 2002.

3. Public Education Efforts Relating to 2001-2002 LCR Monitoring Results

Once lead concentrations in the District exceeded the LAL, the LCR required WASA to engage in a program of public education, including bill inserts, newsletters, brochures, and public service announcements. The LCR provides language to be included in many of these public education materials. For the most part, WASA distributed the required public education materials in a timely fashion during the year following the exceedance and, in many cases, provided the EPA with advance drafts of these materials. However, the final content of those materials did not well serve District residents.

Considerable deliberation went into the development of the content of WASA's public education efforts, deliberation that involved those in the highest levels of the organization. One of WASA's goals during this decision making process was to ensure that the content of these materials be framed in a fashion that would avoid creating undue public concern or alarm. To a large degree, the final version of these materials did include the language provided by the LCR. However, in a number of instances, WASA altered the LCR-specified language in a manner that appears designed to minimize the significance of the health effects of lead in the water supply, or to dissuade a customer from contacting WASA to request assistance. It is difficult to determine whether these changes had a material effect on customers' reaction to or understanding of lead monitoring issues, though they might have. In any event, at a minimum, the alterations create the perception that WASA was motivated by a desire to minimize the negative impact of the information it was providing.

In addition, in certain instances, along with the LCR-specified language, WASA interspersed significant amounts of additional information that was not directly focused on the issue of lead in the water supply (*i.e.*, information concerning the health effects of lead paint, or other types of lead exposure). This information can legitimately be viewed as providing helpful context regarding the health effects of lead. However, because it was not accompanied by stronger statements emphasizing the fact of the LAL exceedance and its impact, the inclusion of this additional information muted the overall tone of the materials and reduced focus on the issue of lead levels in the drinking water.

4. Lead Service Line Replacement Efforts Relating to 2001-2002 LCR Monitoring Results

In addition to providing public education materials, a utility whose lead concentrations exceed the LAL must conduct an inventory of lead service lines in its water system and undertake a program to replace 7% of those lead service lines within a year's time. WASA inventoried approximately 23,000 lead service lines in late 2002, and determined that it was required to replace 1,615 lines during the course of the next year. At the time, WASA had little recent experience in overseeing a large-scale lead pipe replacement program, as it had not undertaken such efforts in many years.

As of the fall of 2002, WASA realized that, under the terms of LCR, it could sample qualifying lead service lines, and if the sample results fell below the LAL, WASA could treat that line as "replaced" for purposes of the 7% requirement. Although the EPA at first resisted this interpretation of the LCR, ultimately the agency approved of this practice. As a result, WASA planned to undertake, beginning in the fall of 2002, a program designed to physically replace approximately 600 lead service lines and to find approximately 1,000 lead service lines that would test under the LAL, such that they also could be deemed "replaced" under EPA regulations ("testing in lieu of replacement").

A number of factors complicated and delayed WASA's lead service line replacement efforts during the following year. One such fact was that the Engineering & Technical Services Division, the group at WASA responsible for the program, was not made aware of the likelihood of such an exceedance until after it occurred, in August or September 2002. This delay — taking into account the time WASA needed to determine the total amount of lead service lines in the District, develop a replacement plan, agree on construction contracts and gain necessary permits — created significant difficulty. Some delay was also occasioned by the pace by which WASA's General Manger, Jerry Johnson, approved the transfer of funds for the program and signed off on the content of notification letters to residents. In addition, WASA's efforts were further complicated by the fact that the EPA informed WASA in June 2003 that it was altering the date by which WASA would have to complete its lead service line replacement efforts, moving the deadline up by three months to September 30, 2003. These factors, in turn, played an important role in the ultimate outcome of WASA's lead service line replacement efforts. They prompted WASA to depend more heavily upon testing in lieu of replacement as a means to meet its 7% goal, and to rely in part on the use of a methodology in the gathering of some of its sampling results that did not technically follow the protocol provided in EPA regulations.

WASA sent out many letters and held a number of meetings as part of its efforts to notify residents, government officials, and others about the lead service line replacement program. However, for the most part, the content of the letters WASA sent did not adequately inform the reader of the fact that the program had been triggered by an LAL exceedance or discuss what the health ramifications of such an exceedance might be. WASA was not required to include such information in these letters, but it should have. In addition, many of the meetings WASA held on the topic were marked by very poor attendance, and may not have included significant discussion about the reason for the implementation of the program or the health effects of lead.

Ultimately, WASA needed to test over 6,000 lead service lines in order to locate a sufficient number of such lines that tested below the LAL. This number surprised WASA's staff due to its size, and indicated that the lead content of the District's water had risen significantly. It appears that, through this massive testing effort, WASA was able to meet the EPA's regulatory deadline and to comply with the LCR's requirements. As the testing period drew on, the Engineering & Technical Services Division, as well as Mr. Johnson and Mr. Marcotte, were aware that WASA needed to expand significantly the number of volunteers because it had not achieved a sufficient number of "passing" sampling results. However, because the focus of these WASA employees was on meeting the EPA's now-constricted regulatory deadline, WASA did not analyze the actual sampling results in the aggregate until December 2003. As a result, they did not inform members of the Water Quality Division, other WASA executives, or the Board as to the nature or meaning of the results during the summer or Fall of 2003. Indeed, the information was not provided to some of these persons until after the testing results were reported in the *Post* in January 2004.

5. The 2003 Lead Monitoring Periods

As part of WASA's lead monitoring during 2003, lead concentrations continued to exceed the LAL. Given the fact that lead concentrations continued to exceed the LAL, the LCR continued to require WASA to engage in public education efforts and a lead service line replacement program. WASA's public education materials in 2003 more closely tracked the language provided in the LCR, although there continued to be instances where the language used by WASA differed from the language proposed in the LCR. There is some indication that the language used by WASA in its public service announcements and advertisements was again meant by WASA executives to inform the public, but not to alarm the public or draw undue press attention. In connection with the lead service line replacement program in response to the results for the 2003 monitoring period, WASA had the advantage of additional planning time. These replacement efforts will continue throughout the summer of 2004. WASA currently plans to physically replace all 7% of the required lead service lines during that period.

D. Recommendations

In response to the findings of the report, Covington proposes the following recommendations to WASA's Board:

- Recommendation 1: WASA Should Assign Responsibility for Oversight of EPA Compliance to a Specific Individual in WASA's Senior Management
- Recommendation 2: WASA Should Develop a System for Ensuring and Documenting EPA Compliance
- Recommendation 3: WASA Should Ensure That the Water Quality Division is Adequately Staffed
- Recommendation 4: WASA Should Independently Test the Validity and Accuracy of WASA's Testing and Monitoring Processes

- Recommendation 5: WASA Should Ensure that Water Quality Testing Results Are Distributed within WASA

- Recommendation 6: WASA Should Establish Regular Internal Meetings to Communicate Key Information Regarding Water Quality

- Recommendation 7: WASA Should Institute Formalized Management Reporting Requirements Regarding Water Quality Information

- Recommendation 8: WASA Should Consider Whether to Adopt Additional Mechanisms to Improve the Flow of Information

- Recommendation 9: WASA's Board Should Advocate For the Appointment of Board Members With Pertinent Technical Experience

- Recommendation 10: WASA's Board Should Institute Reporting Requirements Regarding Water Quality and EPA Compliance Issues

- Recommendation 11: WASA's Board Should Consider the Creation of an Executive Committee

- Recommendation 12: WASA's Board Should Have Involvement in Major Public Education Efforts

- Recommendation 13: WASA's Board Should Review the Structure of Executive Responsibilities

- Recommendation 14: WASA Should Assign Responsibility to One Employee to Act as a Regular Liaison to DoH

- Recommendation 15: WASA Should Ensure Communications Regarding Contact With the EPA are Distributed Within WASA

- Recommendation 16: WASA Should Obtain the Advice of Expert Consultants on How to More Effectively Communicate Risk to the Public

- Recommendation 17: WASA Should Organize a Task Force to Address Public Health Communications When an EPA Action Level is Exceeded

- Recommendation 18: WASA Should Undertake a Review to Ensure that its Customer Service Division Has Sufficient Resources

- Recommendation 19: WASA's Public Health Liaison Should Seek a Standing Partnership with DoH

- Recommendation 20: Covington Recommends the Creation of a Standing Interagency Working Group to Coordinate Action on Water Quality in the District

III. Introduction

A. Events Preceding the Investigation

On January 31, 2004, a *Washington Post* article reported that the tap water in thousands of District of Columbia homes had recently tested above 15 parts per billion ("ppb"), the federal lead action level ("LAL") for lead content at concentrations set by the EPA. (Tab 1). The article stated that, as part of a lead service line replacement program that WASA implemented in 2002 and 2003, nearly two-thirds of the 6,118 residences for which WASA tested tap water samples produced results over the LAL. (*Id.*). The article went on to charge that WASA had been aware of problems with elevated levels of lead in the District's drinking water since at least 2002, but had not adequately informed customers and governmental leaders about the issue. (*Id.*). Over the next few weeks, public interest in the lead monitoring issue grew dramatically, with newspaper reports and governmental inquires raising additional questions regarding various aspects of WASA's response to prior indications of elevated lead levels in the District's water supply.

As a result of this public attention, on March 4, 2004, the Board hired Covington to conduct an independent investigation into WASA's actions regarding the elevated levels of lead found in the District's water. The Board noted that the investigation would be headed by Covington partner Eric H. Holder, Jr., the former Deputy Attorney General of the United States and former U.S. Attorney for the District of Columbia.

B. Related Litigation and Investigations and their Impact on the Report

The public attention regarding lead in the District's water supply has spawned a number of other inquiries into the issue, in addition to the Covington investigation. On March 8, 2004, four days after Covington was retained to conduct this investigation, a complaint was filed by four District residents against WASA and the District of Columbia in the Superior Court of the District of Columbia. (Tab 2). The suit alleged eight causes of action revolving around the alleged failure of WASA and the District government to provide District residents with drinking water that met federal guidelines regarding lead content. Soon after, WASA retained the law firm of O'Melveny & Myers ("O'Melveny") to represent it in the lawsuit. Although the subject matter of the Covington investigation unavoidably overlapped with O'Melveny's representation of WASA in the litigation, in order to maintain the independence of its investigation, Covington has not shared any of its work product with O'Melveny. Nor has Covington provided O'Melveny with any indication of its conclusions regarding the issues discussed in this report.

Additionally, in the weeks before and after the Covington investigation began, a number of other entities announced that they would investigate issues surrounding WASA and the issue of lead in the District's drinking water:

- On February 11, 2004, the District of Columbia government formed an interagency task force to address the lead issue. On April 22, 2004, the task force issued its final

report, which focused on the efforts that various District governmental entities had recently made to address the lead issue and offered forward-looking recommendations. (Tab 3).[1]

- The DCOIG announced an inquiry soon after the *Post* article was published, which will include two audits of WASA. One audit will be focused on conducting technical tests of the District's tap water, in order to test independently the accuracy of WASA's lead monitoring results. The second audit will focus on WASA management and performance issues, including a focus on whether (i) WASA has controls in place to ensure that information flows in an accurate and timely manner both within and outside of the entity; (ii) WASA has controls in place to allow it to take effective action in response to lead monitoring results; and (iii) whether federal and local laws relating to lead monitoring are adequate.

- The D.C. Appleseed Center, pursuant to a request from the Committee on Public Works and the Environment of the District of Columbia Council, is undertaking a study, expected to be completed in September 2004, that will include a review of the statutory and regulatory framework in place to address lead-related health emergencies, as well as the best practices of other jurisdictions that have addressed comparable issues.

- The United States General Accounting Office is investigating how local and federal authorities handled the lead issue in the District and is exploring the adequacy of laws and regulations regarding the safety of drinking water.

- The EPA launched its own review of WASA's historical compliance with the LCR, which is the set of federal regulations that set forth WASA's responsibilities regarding monitoring the amount of lead in the water system. On March 31, 2004, the EPA provided WASA with a list of instances in which it believed WASA had failed to comply with the provisions of the rule over the last few years. The EPA and WASA then engaged in discussions regarding the EPA's conclusions, which led to the issuance of an administrative order agreed to by the EPA and WASA on June 18, 2004. The order sets forth a number of instances in which the EPA believed that WASA did not comply with the requirements of the LCR, dating back to the late 1990s. Although it neither admitted nor denied the EPA's findings in this regard, WASA agreed to conduct a number of activities listed in the order to address the EPA's concerns regarding its past handling of lead monitoring. The order notes that its purpose is to resolve the issues addressed in it without resorting to litigation.[2]

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[1] The task force's report also noted, for example, that representatives from EPA, WASA, the Aqueduct and the DOH had formed a Technical Expert Working Group to develop a plan to reduce the corrosivity and level of lead in the District's drinking water. (*Id.* at 17-18).

[2] In addition to these investigations, hearings regarding WASA and lead-related issues have been held since January by, among others, the District of Columbia Council, the House (continued...)

Covington has discussed the nature of its investigation with certain of these entities, including the DCOIG, the D.C. Appleseed Center and the EPA, in order to enable these entities to understand the scope of Covington's work, and vice versa. However, Covington has not provided any of these entities with its work product or with any indication of its conclusions regarding the issues discussed in this report.

C. Scope and Timing of the Investigation

In a press release and a Board resolution distributed on March 4, 2004, the Board set forth, in general terms, the scope of Covington's investigation. It explained that the Covington inquiry would "investigate WASA's management of elevated lead level sampling and notification," beginning with the 2000-2001 lead monitoring period. (Tab 4 at 1; Tab 5 at WAS 0002439). As part of that inquiry, Covington was charged to review (i) WASA's compliance with applicable laws; (ii) how the Board and WASA's management team executed their duties and responsibilities; and (iii) whether WASA's communications with the EPA, the DoH, WASA's customers, and other external organizations were appropriate. (Tab 4 at 1). The Board stated that Covington would have access to all WASA records and receive full cooperation from WASA's management during its investigation. (Tab 5 at WAS 0002439).

In setting forth the scope of the investigation, WASA noted the time-sensitive nature of the inquiry. In order to gain insight quickly into WASA's actions regarding these issues, WASA stated that it expected the Covington investigation to be completed within 60 days. (Tab 4 at 1). Although this report, for reasons discussed more fully below, is being issued later than the sixty-day deadline that was initially contemplated, Covington has endeavored to provide the Board with a prompt report, released as soon as was reasonably possible.

In the first several days after its engagement, based upon the Board's public statements and further discussions with the Board's Chairman, Glenn Gerstell, Covington formalized the scope of its investigation. Consistent with the direction it received from the Board, the Covington investigation has focused on WASA's actions regarding lead monitoring activities, pursuant to the terms of the LCR.[3] The investigation has focused predominantly on the time period from July 1, 2000 through January 31, 2004. This time period begins at the start of the 2000-2001 lead monitoring period and ends on the date of the January 31 *Washington Post* article that prompted significant public attention as to the lead issue.

Committee on Government Reform, and the Senate Committee on Environment and Public Works's Subcommittee on Fisheries, Wildlife and Water.

[3] The LCR sets forth requirements relating to monitoring for both lead and copper in the water supply, and WASA collected and submitted monitoring results for both lead and copper during the monitoring periods discussed in the report. Due to the report's focus on lead, however, the report will simply use the term "lead monitoring" when referring to WASA's testing activities in the relevant monitoring periods and will not generally refer to monitoring for copper.

Both in its public statements and in discussions with Covington regarding the scope of the investigation, the Board made clear that all aspects of WASA's involvement in lead-related issues would be open for inquiry. At the same time, consistent with the time-sensitive nature of the investigation, Covington was asked to focus in particular on a few areas of inquiry that were the most significant issues:

- ***WASA's conduct in excluding or invalidating certain samples in the 2000-2001 monitoring period.*** Covington was asked to examine, to the extent possible: (i) WASA's motives in excluding or invalidating the samples; (ii) whether WASA followed federal regulations in excluding or invalidating the samples, and whether the EPA approved WASA's actions in that regard; (iii) how WASA explained the basis for the exclusion or invalidation, if at all, to outside agencies or groups; and (iv) whether members of WASA's senior management were promptly told about the exclusion or invalidation of samples.

- ***WASA's collection and reporting of lead monitoring results during the 2001-2002 monitoring period and the actions WASA took in light of its exceedance of the LAL in that monitoring period.*** Covington was asked to examine, to the extent possible: (i) whether WASA employees reported these monitoring results in a timely manner to senior WASA executives, governmental agencies, customers, or other groups, and if not, why not; (ii) whether governmental agencies such as EPA or the DoH provided recommendations to WASA as to how it should respond to the results; and (iii) whether WASA complied with those recommendations, and, even if it did so, whether WASA should have taken additional action.

- ***WASA's public education efforts, initiated as a result of its exceedance of the LAL in the 2001-2002 monitoring period.*** Covington was asked to examine, to the extent possible: (i) the speed and the adequacy of these public education efforts; (ii) whether the efforts were insufficient, either under the terms of the LCR or otherwise, by failing to highlight the results of the lead testing in the monitoring period; and (iii) the response of outside entities, such as customers or the media, to WASA's education efforts.

- ***WASA's actions related to its lead service line replacement program, initiated as a result of its exceedance of the LAL in the 2001-2002 monitoring period.*** Covington was asked to examine, to the extent possible: (i) WASA's motivations in seeking to test the water of a number of residents in lieu of physically replacing the lead service lines[4] of those residents, pursuant to the LCR; (ii) whether WASA complied with the LCR with regard to its decision to undertake testing in lieu of replacement; (iii)

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[4] A service line is pipe that connects the water main to the building inlet. It runs from the water main, typically buried beneath the street, to the customer's home. In the District, the service line is installed by the homeowner, contractor or builder, not by the city, and is owned by the homeowner.

whether, even if that decision complied with federal regulations, WASA was unduly focused on technical compliance with the LCR and insufficiently focused on the public health concerns identified by the testing results; and (iv) how quickly WASA staff alerted customers, WASA's own senior management, the Board, and governmental actors regarding the results of this testing, and, to the extent that WASA did not timely provide such notification, why it did not.

The report's focus on the above-listed matters reflects their significance to the Board and to the public. In addition, however, as Covington conducted interviews, reviewed documents and pursued other forms of investigation, it identified a number of additional issues, which are discussed in the body of the report.

In order to remain faithful to the scope of the report set forth by the Board, as well as to provide necessary boundaries on the amount of information that could be reviewed in a limited time frame, the report is not intended to address a number of other important lead-related topics that have received public attention over the last few months. For example, the report will not discuss the ramifications of: (i) the EPA's issuance, in February 2000, of an optimal corrosion control treatment ("OCCT") designation allowing for a pH adjustment, as opposed to the use of a non-zinc orthophosphate corrosion inhibitor, to address the corrosivity of the District's water; (ii) the Aqueduct's decision to switch, in November 2000, from chlorine to chloramines as a disinfectant for the water supply; or (iii) WASA's efforts to respond to the issue of elevated lead levels after the publication of the *Washington Post's* January 31, 2004 article. Although these issues are important, they are distinct from the issues regarding lead monitoring, which is the subject that Covington was retained to investigate. As described above, these issues and others are being addressed by a number of other governmental inquiries and have been the subject of scrutiny by the media. Because they fall outside the scope of this inquiry, the are not addressed in this report.

As noted, one goal of the inquiry was for Covington to provide a prompt report to the Board. Among the virtues of a prompt report is that it will enable the Board quickly to understand the facts regarding these issues and to act in a way that sets and upholds high standards for legal compliance and protection of public health. Because of the value of a timely investigation, neither Covington's inquiry nor this report is intended to be the last word on the subject of WASA's lead monitoring activity. The constraints of time and the unavailability of certain key witnesses have precluded Covington from engaging in an exhaustive factual investigation as to all of the issues within the scope of the report. With that said, one benefit of the report is that it should be useful in framing the issues for WASA, to the extent that WASA conducts further exploration of its history of lead monitoring activities, and to any other persons or entities with whom the Board wishes to share this information.

D. Nature of the Information Evaluated in the Report

1. WASA-Related Materials Reviewed and Persons Interviewed

Upon being retained by WASA, Covington initially requested documents that would enable it to identify key dates and issues central to its report. In the ensuing weeks, WASA's Office of the General Counsel ("OGC") provided Covington with selected documents,

including correspondence with governmental actors, lead monitoring results provided to the EPA, certain public education materials and other lead-related materials. The OGC also indicated that it would begin collecting other lead-related records that might be significant to Covington's inquiry. After reviewing the initial set of documents that were made available to it, Covington provided WASA's OGC with a wide-ranging list of document requests, which sought access to large quantities of electronic and paper documents covering many issues regarding lead and the District's water supply. Some of the materials requested dealt with lead-related issues that were outside of the scope of the report, yet provided useful contextual information.

Throughout the Covington investigation, at no time did the OGC ever restrict access to any group of documents in WASA's possession. However, due to the logistical difficulties inherent in gathering such a large group of documents and the need to comply with requests for information by other investigatory bodies, WASA's production of documents was initially slowed. At present, the OGC has indicated that it has provided Covington with all of the materials listed in Covington's document requests that were in WASA's possession and were relevant to the scope of the report. These materials have included, among other things, e-mail, electronic documents and paper files retrieved from those present and former WASA employees who had the most significant relationship to the issues addressed in the report. A list of the materials provided to Covington by WASA, as well as materials Covington obtained from other sources, is contained in Appendix A. A significant percentage of the documents that Covington received from WASA were provided in the latter half of the investigation. The timing of the production did affect, to a degree, the timing of the completion of this report.

Tens of thousands of pages of documents and thousands of e-mail messages have been reviewed and used to inform the investigation. It should not be assumed, however, that all relevant documents were retrieved from WASA, or that Covington was able, in the time allotted, to capture all information important to the review of these issues.

At the same time that it made its document requests, Covington made requests to interview a number of present and former WASA employees and Board members. The OGC indicated that it wished to first contact its present and former employees and arrange for the interviews to take place. Ultimately, Covington was able to interview nearly all such persons whom it requested to interview, including present and former employees working at WASA in the Water Services, Engineering & Technical Services, and Public Affairs divisions. Covington also interviewed the Chief Engineer/Deputy General Manager, the General Manager, and a representative group of members of the Board. In addition, as its investigation moved forward, Covington spoke with additional WASA employees and Board members who were not on its initial list of interview requests. A complete list of all persons whom Covington interviewed in connection with the investigation, including present and former WASA employees or Board members, is attached as Appendix B.

Separately, Covington sought to interview Seema Bhat, the former WASA Water Quality Manager and a key witness in the investigation, through discussion with Ms. Bhat's attorney. Ms. Bhat's attorney refused to give permission for an interview, however. Due to the central role that Ms. Bhat played in the events discussed in the report, this fact inevitably affected the completeness of the investigation. Ms. Bhat, however, has filed a lawsuit under the auspices of the Department of Labor regarding her termination from WASA in 2003. Covington

has reviewed hearing transcripts, deposition transcripts, and other documentary evidence from that litigation to gather information relevant to this report. Appendices C and D provide a list of those persons, including former WASA employees or Board members, who refused Covington's interview requests or who were unavailable for interviews.

2. Cooperation of Other Governmental and Non-Governmental Actors

In addition to seeking access to WASA documents and witnesses, Covington sought information from a wide array of governmental and non-governmental sources. Through these efforts, Covington reviewed thousands of pages of additional documents and was able to speak with a number of additional persons who provided insight to the report. However, in some instances, as described below, governmental or private entities with significant connection to the issues discussed in the report refused to provide information and/or rejected requests by Covington for interviews of knowledgeable witnesses.

At the start of the Covington investigation in March 2004, Board Chairman Glenn Gerstell sent a letter to Donald Welsh, Regional Administrator for EPA Region III, requesting that the EPA cooperate in the inquiry, by producing documents and making its staff members available for interviews. (Tab 6). After an initial review of documents provided by WASA and relevant newspaper articles, Covington made a letter request to the EPA for copies of EPA documents that had been cited in a recent *Washington Post* article, as well as for all other documents relevant to the issue of elevated lead levels in the District's water. (Tab 7). After a delay of several weeks, the EPA responded by stating that it would address Covington's request for documents under the Freedom of Information Act ("FOIA"). The EPA subsequently provided Covington with many of the requested documents, although it withheld some documents, invoking certain exemptions to the FOIA. (Tab 8; Tab 9; Tab 10).

Covington requested, in telephone conversations with EPA officials, to be permitted to interview those EPA employees who had the most significant contact with WASA during the monitoring periods at issue in the report. The EPA initially agreed to this request and asked that Covington provide it with a list of the EPA employees whom Covington wished to interview, the topics to be covered, and identification of the documents Covington wished to review. (Tab 11). Covington complied with this request. (*Id.*). However, the EPA later changed its position and indicated that it would not permit in-person interviews of its employees, and would instead only allow Covington to submit a list of written questions, to which the EPA would respond in writing. (Tab 12). Covington complied with this request as well. (*Id.*). After receiving these written questions in early May 2004, the EPA indicated that it would not be in a position to provide Covington with answers until on or about June 25, 2004.[5] On that date, the

[5] Due to the importance of these EPA responses to the investigation, Covington and the Board determined that the provision of a final report should be delayed until the EPA's answers were received and synthesized, a factor which also contributed to the delay in the release date of the report.

EPA provided Covington with responses to these questions, along with a few additional documents. (Tab 13).[6]

In addition to seeking information from the EPA, Mr. Gerstell requested the assistance of the DoH, in a letter to the agency written at the outset of the investigation. (Tab 14). After its initial document review, Covington made a letter request for copies of DoH documents that had been listed in a recent *Washington Post* article, and for any other documents relevant to the inquiry. (Tab 15). DoH initially expressed a desire to be responsive to the investigation and provided Covington with certain lead-related documents pursuant to the FOIA. In subsequent conversations, DoH attorneys indicated that Covington could interview any DoH employees that it wished to. Covington requested to speak with a number of DoH employees who had significant contact with WASA during the lead monitoring periods at issue in the report. (Tab 16). Those interviews were promptly scheduled. However, just days before they were to occur, DoH cancelled the interviews, indicating that it would not permit its employees to be interviewed. Since that time, DoH has refused to participate further in the Covington investigation.

Aside from the EPA and DoH, Covington sought the assistance and input of other governmental actors as part of its investigation. From the Army Corps of Engineers ("Corps"), Covington made a FOIA request for lead-related documents relating to the Aqueduct and sought the ability to interview certain Aqueduct employees. The Corps indicated that it would produce documents pursuant to Covington's FOIA request. (Tab 17). As of the time of the report, the Corps has not produced any documents in response to the FOIA request, although it did provide some documents in response to written questions, as noted below. With respect to interview requests, the Corps initially did not rule out interviews, but it requested more information regarding the purpose of the investigation and the use to which the interviews would be put. (*Id.*). Covington then made a formal request for interviews. (Tab 18). Ultimately, as did the EPA and the DoH, the Corps refused to allow in-person interviews of its employees. Instead, it permitted Covington to submit a list of written questions, to which it would respond in writing. Covington did so, (Tab 19), and the Corps provided brief written answers to the questions, along with some accompanying documents.

Covington sought information from the DCOIG, as well. After becoming aware that the DCOIG had undertaken an investigation in 2001-2003 that involved inquiry into WASA's lead monitoring activities in the 2000-2001 monitoring period, Covington made a FOIA request for documents regarding that investigation, as well as any other documents relating to WASA lead issues in the DCOIG's possession. (Tab 20). The DCOIG provided Covington

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[6] As part of the responses provided on this date, the EPA directed Covington to contact the EPA OIG, with respect to one of Covington's questions. The question regarded the DCOIG's investigation of WASA's handling of the 2000-2001 lead monitoring process, with which the EPA OIG provided assistance to the DCOIG. Covington contacted the EPA OIG, which provided Covington with a few pages of material regarding the investigation. The EPA OIG indicated that it had additional materials regarding the investigation that it would not be able to provide prior to the report's issuance. WASA may wish to pursue these documents in the future.

with documents relating to the 2001-2002 investigation, as well as all other documents relevant to Covington's request. (Tab 21; Tab 22). Covington followed up with a request to speak to the DCOIG agent who conducted the investigation, and held a meeting with that agent.

Covington also sought to speak with certain employees of Baker Killam Joint Venture ("Baker Killam"), a contractor that has assisted WASA with various aspects of lead monitoring and with the lead service line replacement program over the last few years. Baker Killam attorneys at first indicated that they would allow its employees to participate in in-person interviews, but asked for a delay so that it could obtain outside counsel in the matter. Baker Killam's outside counsel, once retained, refused to allow Covington to speak with any Baker Killam employees. Covington did, however, have access to a number of Baker Killam documents from WASA's own files, and Covington reviewed those documents in the course of its investigation.

In addition to the entities described above, Covington sought access to relevant information and documents from a number of other sources. For example, Covington interviewed several environmental and community advocates who have been vocal with regard to WASA's role in the lead monitoring process. Covington attended governmental hearings relating to lead issues and reviewed newspaper articles, local and federal government hearing transcripts, reports from governmental entities, and various other materials in the course of its investigation.

As the foregoing discussion indicates, there were a number of instances in which Covington was denied access to witnesses or documents that would have provided significant additional insight into the matters addressed by this report. The fact that Covington did not have access to all potential sources of information is regrettable. Nonetheless, from the large volume of documentary evidence and though extensive interviews of witnesses, Covington was able to get a finer grasp of the essential facts and to reach informed conclusions. In the end, Covington interviewed over 20 witnesses, spoke informally with a number of additional persons, and reviewed tens of thousands of pages of documents. Of course, to the extent that any entities or individuals should belatedly provide additional documents or information to Covington, Covington will provide that material directly to the Board.

E. Structure of the Report

The issues discussed in the report touch on numerous topics regarding WASA and its lead monitoring activities. As a result, and in order to provide the reader with a helpful context in which to review the findings of the report, Section IV of the report sets out background information regarding (i) WASA, its internal structure, and the nature of its interactions with other entities as part of the lead monitoring process; (ii) the health effects of lead; and (iii) relevant aspects of the LCR. Section IV also provides more information about the persons, entities, and terms mentioned in the Introduction.

Covington's investigation covers a time frame comprising three one-year-long periods in which WASA collected and tested tap water samples for lead content, pursuant to the LCR: (i) the 2000-2001 monitoring period (from July 1, 2000 through June 30, 2001); (ii) the 2001-2002 monitoring period (from July 1, 2001 through June 30, 2002); and the 2003 year,

which included two six-month monitoring periods (from January 1, 2003 through June 30, 2003 and July 1, 2003 through December 31, 2003, respectively). For ease of reference, Section V of this report has been divided into subsections that cover each of these three monitoring periods. Section V includes two additional subsections that focus on WASA's compliance with particular aspects of the LCR, which were triggered as a result of its exceedance of the LAL in the 2001-2002 monitoring period: (i) compliance with certain public education requirements regarding lead and (ii) the implementation of a lead service line replacement program. As a result, Section V includes five subsections in total — *2000-2001 Lead Monitoring Period, 2001-2002 Lead Monitoring Period, Public Education Efforts Relating to 2001-2002 LCR Monitoring Results, Lead Service Line Replacement Efforts Relating to 2001-2002 LCR Monitoring Results,* and *The 2003 Lead Monitoring Periods.* For the most part, the subsections contain information from each specific time period, and the information is conveyed in roughly chronological fashion. At times, these subsections include information that does not directly relate to each of the five subsection topics, but that bears more generally on lead-related issues. In those instances, the information has been included in an appropriate subsection of the report, based upon the time period to which it relates.

The report ends with Section VI, which provides WASA with initial conclusions and recommendations drawn from Covington's inquiry. While these recommendations and conclusions are based on the best information available to Covington, it is conceivable that additional facts or circumstances may later come to light that would lead to different conclusions. In some cases, WASA has already taken action in response to the issues discussed in this report. In any event, the intent of the final section of the report is to summarize the key themes that were explored in the Covington investigation and to provide useful input to WASA as it executes its duties in the future.

IV. Background Information Regarding WASA and Monitoring of Lead in the Water Supply

A. Background Information Regarding WASA

1. WASA's Role and General History

This report focuses on actions undertaken by WASA, a semiautonomous regional entity that provides retail water and wastewater services to customers in the District of Columbia. WASA also provides wholesale wastewater treatment to portions of Montgomery and Prince George's counties in Maryland, Fairfax and Loudoun counties in Virginia, and to the town of Vienna, Virginia. More than 500,000 customers in the District of Columbia, and an additional 1.6 million customers in Maryland and Virginia, are included in WASA's service area of nearly 725 square miles. WASA delivers more than 130 million gallons of drinking water daily to over 130,000 commercial and residential customers, through the use of nearly 1,300 miles of pipes, five pumping stations, five reservoirs, four elevated water storage tanks, 36,000 valves and 8,700 hydrants.

WASA was created in 1996 by the local enactment of the Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996 (1996 D.C. Stat. 111 (1996)), and the federal enactment of the District of Columbia Water and Sewer Authority Act (110 Stat. 1696 (1996)). WASA replaced the District of Columbia Water and Sewer Utility Administration ("WASUA"), which had existed as an arm of the District government from 1938 until 1996. While WASA continues to maintain some ties with the District government, its finances are separate from those of the District, with all of its funding generated through usage fees, EPA grants and the sale of revenue bonds. WASA also creates its own internal regulations and policies for matters such as procurement, contracting, and human resources.

2. Structure of WASA's Board and Employee Organization

WASA is governed by its Board, which consists of eleven principal and eleven alternate members, including representatives from the District of Columbia, from Montgomery County and Prince George's County in Maryland, and from Fairfax County in Virginia. Six of the Board's principal members represent the District, while the other five are drawn from the adjoining jurisdictions. All Board members participate in decisions affecting the general management of the joint-use facilities; however, only the District of Columbia Board members participate in those matters which affect only District ratepayers. The Board typically meets as a whole once a month. Much of the work of the Board is carried out by various Board committees, who meet separately and have responsibility for oversight of particular aspects of WASA's affairs. The functioning of the water and sewer infrastructure is overseen by the Board's Environmental Quality and Operations Committee ("Operations Committee"). This committee's role includes budgeting for system improvements, including those required by the LCR.

Service on the Board is a part-time occupation; most Board members have full-time occupations. Some Board members are appointed due to their positions as governmental employees; others are private citizens who serve as volunteers. Board members include senior county executives who have considerable experience in managing public institutions. As

previously noted, the Chairman of WASA's Board is Glenn Gerstell. The chair of the Operations Committee is James Caldwell; C.C. Johnson, the former chair of the committee, served in that position until 2003.

Working under the aegis of the Board is a large staff of full-time employees. Jerry Johnson, WASA's General Manager, manages the entity's day-to-day operations, including its approximately 1,200 employees. WASA's General Manager is appointed by the Board of Directors. The Board typically provides direction to the General Manager, who then implements that direction in day-to-day operations at WASA. Mr. Johnson has held the General Manager position since being hired by WASA in June 1997.

Mr. Johnson is directly supported by a few WASA executives, who in turn have responsibility for overseeing various components of the organization. One of these is the Chief Engineer/Deputy General Manager, who oversees all technical operations at WASA, including Wastewater Treatment Services, Water Services, Sewer Services, Engineering & Technical Services, and Maintenance Services. Michael Marcotte held that position between September 1997, when he joined WASA, and July 2004.[7] Also reporting directly to the General Manager is the General Counsel. Avis Russell was recently hired as General Counsel at WASA. During much of the relevant time period covered by this report, WASA's General Counsel was Henderson Brown. After Mr. Brown's departure from that position in 2003, Wendy Hartmann Moore served as Interim General Counsel for a number of months until Ms. Russell's hire. In addition, the Public Affairs Director, who coordinates all communications strategies for WASA, reports directly to Mr. Johnson. Karen DeWitt was recently hired as Public Affairs Director at WASA. However, during much of the relevant time period covered by this report, the Public Affairs Director was Elizabeth Lawson, who left that position in December 2003.[8]

As noted above, Mr. Marcotte had direct responsibility for overseeing five different divisions, including two divisions that have particular relevance to this report. One of those divisions is the Division of Water Services, which has been directed by Kofi Boateng since Mr. Boateng's arrival at WASA in August 2000.[9] Water Services is currently divided into four

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[7] Mr. Marcotte recently announced plans to leave WASA for another employment position in the Department of Public Works of Houston, Texas, effective July 9, 2004. WASA has stated that it will conduct a national search for Mr. Marcotte's replacement. (Tab 23).

[8] The other WASA executives who directly report to Mr. Johnson, but who had a lesser degree of involvement in the issues discussed in this report, are (i) the Chief Financial Officer, Paul Bender, who oversees the areas of Finance and Budget, Customer Service, Procurement/Material Management, Risk Management, and Information Technology; (ii) the Interim Assistant General Manager, Michael Carter, who oversees Human Resources, Fleet Management, Facilities and Security, and Occupational Health and Safety and (iii) the Internal Auditor, Michael Hunter.

[9] For the few months prior to August 2000 that fall into the scope of the report, the Water Services Division was run by Mr. Marcotte, as a vacancy existed in the Water Services Director position.

subdivisions: (i) the Distribution Division, which is responsible for fixing water main breaks, among other things; (ii) the Pumping Division, which manages WASA's pumping operation; (iii) the Technical Support Services Division, which utilizes technology to track issues of importance to Water Services and (iv) the Water Quality Division, which is responsible for the oversight of the chemistry and quality of the water supply.

It is the last of these four subdivisions, the Water Quality Division, that was responsible for conducting lead monitoring under the LCR during the monitoring periods at issue in this report. As Water Quality Manager, Seema Bhat ran this division from March 1999 until she was fired in January 2003. In that role, Ms. Bhat oversaw WASA's lead monitoring program, among her other responsibilities, and was in contact with the EPA two or three times per month by phone or e-mail regarding water quality issues. (Tab 13 at 6). The vacancy in the Water Quality Manager position was not filled until September 2003, when Richard Giani was hired to be the new Water Quality Manager, a position he holds today. When he assumed this position, Mr. Giani became the primary WASA point of contact with the EPA on water quality issues, contact that has significantly increased in frequency since February 2004.

At various time periods discussed in this report, Ms. Bhat was assisted by various technicians in the Water Quality Division in gathering lead monitoring results and otherwise overseeing the lead monitoring program. Jerome Krough served as a Water Quality technician from April 1999 through September 1999, when he was fired from that position by Ms. Bhat. Ms. Bhat later hired Silas Obasi in June 2002 to fill this position. Mr. Obasi has continued in that role until the present day and is now supervised by Mr. Giani. For the few months in 2003 between Ms. Bhat's termination and Mr. Giani's hire, Mr. Obasi worked directly with Mr. Boateng to fulfill the responsibilities otherwise undertaken by the Water Quality Manager.

Another division overseen by Mr. Marcotte that is relevant to the events discussed in this report is WASA's Engineering & Technical Services Division. This division, which is directed by Leonard Benson, was responsible for implementing the lead service line replacement program that WASA put in place after exceeding the LAL at the end of the 2001-2002 monitoring period. Roger Gans manages a subdivision of the Engineering & Technical Services Division that is responsible for planning, engineering, and design projects related to the water system. Mr. Gans had primary responsibility for overseeing the lead service line replacement program during the time period discussed in the report. The Planning Supervisor in Mr. Gans's office is Jodye Russell, who was hired in April 2003. Ms. Russell played a key role in managing lead service line replacement, handling nearly every aspect of the replacement program except for aspects relating to physical construction. Curtis Cochrane is a Program Manager in Ms. Russell's office who worked on lead service line replacement issues, as well as on the other aspects of LCR compliance.

3. Other Entities that Interact with WASA in the Lead Monitoring Process

The EPA's Mid-Atlantic Regional Office (also known as the EPA's "Region III" office), located in Philadelphia, PA, is responsible for overseeing federal environmental programs in the District of Columbia. Most States or Territories have gained primary enforcement responsibility for ensuring compliance with water quality standards under the Safe

Drinking Water Act of 1974 ("SDWA"), including those standards embodied in the LCR. Such authority, called primacy, has been granted to all but two States and Territories: the District of Columbia and Wyoming. Consequently, with respect to the District of Columbia, the Water Protection Division of the EPA's Region III office has primary enforcement responsibility to administer and oversee WASA's and the Aqueduct's compliance with all SDWA standards, including the LCR. In doing so, the EPA provides advice and technical assistance regarding Federal regulations, oversees the monitoring of the drinking water and treatment processes according to Federal regulations and takes appropriate enforcement actions if violations occur. The primary EPA point of contact for WASA regarding lead monitoring during the time period covered by the report was George Rizzo, the EPA's Program Manager for the District of Columbia Public Water System Supervision Program. Mr. Rizzo, assisted by a number of other EPA employees, oversaw WASA's compliance with the various requirements of the LCR during the time periods addressed in this report.

The DoH, whose mission is to promote and protect the health, safety and quality of life of District residents, collaborated with WASA in certain instances with regard to lead monitoring during the time periods discussed in the report. For example, during the relevant monitoring periods, DoH played a role in assisting WASA with the production of public education materials, discussions regarding the issue of lead service line replacement, and providing a public health perspective to customers regarding the lead issue. The DoH is divided into numerous subdivisions. One such subdivision is the Bureau of Environmental Quality. The Water Quality Division of the Bureau of Environmental Quality is responsible for oversight and analysis of the District's surface and ground water. In WASA's interactions with DoH officials during the time periods discussed in the report, WASA primarily worked with James Collier, the head of the DoH's Water Quality Division; Jerusalem Bekele, a Program Manager in the Water Quality Division; and Gregory Hope, another member of the Water Quality Division. Another subdivision of DoH is its Bureau of Hazardous Materials and Toxic Substances, which is directed by Dr. Lynette Stokes, who also interacted with WASA during the time period described in the report. Finally, WASA had discussions with Theodore Gordon, the former DoH Deputy Director for Environmental Health, regarding the ways in which WASA and DoH might cooperate on lead issues.

WASA purchases water from the Aqueduct, which produces drinking water at two treatment plants in the District that serve approximately one million District residents, as well as residents in selected portions of Northern Virginia. The Aqueduct was designed and built by the Corps in 1859 and is operated by the Corps as a division of the Corps' Baltimore District. The Aqueduct facilities also serve as a contract laboratory for WASA, as Aqueduct personnel conduct testing on water samples provided by WASA for various substances, including lead and copper. In conducting lead monitoring pursuant to the LCR, WASA provides the Aqueduct with water samples it has collected from customers. The Aqueduct then logs the samples using a chain-of-custody form, preserves them, and analyzes them for lead content. The Aqueduct records the date on which it receives a sample, and the date the sample is tested. The testing process during the time period covered by this report was overseen by Elizabeth Turner, Chief of the Aqueduct Laboratory Section. After reviewing samples that had been tested, Ms. Turner would transmit the results to WASA's Water Quality Manager or other Water Quality employees. Thomas Jacobus is the Chief of the Aqueduct, who oversees all aspects of the

Aqueduct's management, including the testing it undertook for WASA. Lloyd Stowe is Chief of Plant Operations Branch, who directly reports to Mr. Jacobus and who is the immediate supervisor of Ms. Turner.

In its lead monitoring efforts over the last few years, WASA has received programmatic assistance in various forms from Baker Killam, the joint venture consulting firm. John Ricks is Baker Killam's Project Manager for WASA. Linda Bernhardt, a Communications Specialist with Baker Killam, provided assistance along with Mr. Ricks regarding, among other things, the development of public education materials that WASA produced pursuant to the LCR. James Pourier and John Wujek are two additional Baker Killam employees who have worked closely with WASA regarding the matters discussed in this report.

B. Health Effects of Lead

In order to provide context regarding WASA's lead monitoring activities and WASA's reaction to the results of that monitoring, it is helpful to have a general understanding of the health effects of lead, particularly with respect to its presence in the water supply. The following subsection addresses this topic.

1. Content of Lead and Forms of Exposure

Lead is a metal. Odorless, colorless, and tasteless, it is very toxic to humans and has no known biological benefit. (Tab 24). Nonetheless, it has properties similar to those of calcium, iron, and zinc, trace metals that are required in the diet and that play vital roles in human metabolism. (Tab 25 at 2). These similarities facilitate the absorption of lead into the bloodstream and are related to its toxicity. Lead's similarity to calcium, for example, results in most ingested lead being stored in the bones, where it can later serve as an internal source of lead toxicity. (*Id.*).

Today, lead paint is the major source of lead exposure for children in the United States and the primary source of childhood lead poisoning in the United States. (Tab 25 at 2; Tab 26 at 1). Children rarely ingest chips of lead paint. More commonly, deteriorating lead paint is present in house dust and is ingested by children through hand-to-mouth or object-to-mouth activity. (Tab 27 at 2). Generally, children who reside in housing that contains hazardous amounts of lead paint have dramatically higher exposure levels than those children who are exposed to lead by drinking lead-tainted water. (Tab 24; Tab 28 at 1). Although 70% of the homes in the United States that were built before 1960 are estimated to contain lead paint, the mere presence of lead paint in a house is not a hazard. The most hazardous of those homes, from a health perspective, are the 3.8 million homes that contain decaying or deteriorating lead paint, in which two million children under the age of six reside. Lead paint in housing is also particularly hazardous when the housing has recently been renovated and remodeled, unless strict EPA guidelines for eliminating lead hazards are followed. (Tab 27 at 2-3).

Aside from the presence of lead in paint, lead exposure can also occur through:

- The presence of lead in contaminated soil, with higher levels of lead found (i) in the soil of urban areas where past activities, such as heavy traffic, have emitted lead into

the environment; (ii) near homes that contain exterior lead paint or (iii) in areas near lead mines, smelters, or other industries that emit lead.

- Lead released via contaminated dust, particularly dust that accumulates (i) on the clothing of individuals who work in the lead industry or (ii) in areas surrounding such industry.

- Lead that exists in food sources, which occurs due to a number of factors, including: (i) the atmospheric deposition of air pollution onto crops or cropland; (ii) the past and present use of lead in pesticides; (iii) soil contaminated by past industrial activities; (iv) lead pigments that are added to food (directly or indirectly via food packages with lead inks) or (v) the storage or preparation of foods in containers that leach lead.

- Lead existing in traditional home remedies or cosmetics.

- Lead in children's toys (usually imported items), in arts and crafts or hobby materials (for example, stained glass, lead-casted toy soldiers, or fishing weights), or in home industry (most notably, backyard lead acid battery recycling).

- Lead from a myriad of other sources (for example, children have developed lead poisoning from ingesting lead curtain weights or lead fishing weights; and from contact with lead on vinyl miniblinds that were manufactured in leaded molds.)

Finally, and most significantly for this report, tap water is a source of lead for many individuals. (Tab 25; Tab 26). Lead enters drinking water mainly from corrosion of lead plumbing pipes and fittings and/or from solder that contains lead. Such materials may be present in the infrastructure of a water system, in homes, in schools or in other buildings. (Tab 25; Tab 29). Acidic water of low mineral content can leach large amounts of lead from lead pipes or solder. The capacity of water to leach lead and copper from the walls of pipes and from solder and fittings is referred to as "corrosivity." Corrosion of pipes and fittings is more likely to occur when water stands in pipes for extended periods of time.

The likelihood of a person's being exposed to lead in drinking water can vary depending on a complex series of factors. A "first draw" of water from the tap, taken after the water has been resting in pipes or in fixtures after several hours of disuse, is likely to contain greater amounts of lead than water that has not rested for long in pipes or fixtures. For that reason, water consumed by a customer after he or she has used water in other household activities (*i.e.*, after flushing the toilet, bathing, or washing dishes and clothes) or after the customer has run the tap for a few minutes (referred to as "flushing" the tap) may contain lesser amounts of lead than a first draw of water. Thus, an individual's exposure to lead can vary, depending on when the water was drawn from the tap relative to other modes of water usage. Exposure to lead through tap water can also be affected by other variables, such as (i) the amount of water a person ingests; (ii) whether a person uses a water filter (which can remove between 95% and 99% of lead in water) or bottled water for drinking and in food preparation; and (iii) the degree to which a person ingests water at home as compared to other locations (*i.e.*, at daycare, school or work).

In various public fora over the last few months, medical experts, including those who have considered the District's recent experiences with elevated levels of lead in the water supply, have communicated a variety of sometimes conflicting opinions regarding the severity of the health threat of lead exposure through tap water. Many experts have said that it is difficult to imagine that consumption of water that exceeds the EPA's LAL, absent exposure to other sources of lead, would cause a high risk of injury to a child. (Tab 28; Tab 30). On the other hand, it has been observed that many of the same older homes that are served by lead service lines also contain lead paint, which, depending on the condition of the paint and other factors, could create significant opportunities for lead exposure. In such cases, it would be difficult, if not impossible, to isolate the relative contribution that lead in the water supply makes to the total amount of lead found in a person's body. (Tab 25 at 2).[10] This difficulty is magnified when the variables discussed earlier, such as the amount of tap water a person consumes or the particular time when water is drawn from the tap, are taken into account.[11] Despite the difficulties inherent in such calculations, experts have noted that although drinking water containing amounts of lead at the EPA's LAL is, in and of itself, a relatively minor source of lead exposure for children, it poses the greatest risk to those who already have high lead levels in their blood from other sources, such as lead paint. (Tab 30).[12]

2. Health Effects of Lead Exposure

The popular understanding that lead exposure is hazardous to human health has existed since the days of ancient Rome, and today, there is nearly unanimous agreement in the scientific community on the point. (Tab 25; Tab 28). It is now recognized that lead is toxic to almost every organ system, most importantly, the central nervous system, peripheral nervous system, kidneys, and blood. (Tab 24). For example, lead interferes with enzymes that catalyze the formation of heme, the carrier for iron in red blood cells. (Tab 25 at 2). Lead has also been found to impair hearing acuity, and has been associated with hypertension, chronic kidney disease, delayed puberty, decreased growth in children, and periodontal disease. (Tab 31; Tab 32; Tab 33; Tab 34; Tab 35).

The health effects of lead on adults and children differ significantly. Adults with very harmful levels of lead in their bodies can suffer from difficulties during pregnancy, reproductive problems, high blood pressure, digestive problems, nerve disorders, memory and concentration problems, and muscle and joint pain. (Tab 27). However, young children are

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[10] As a result, experts and regulatory agencies have differed in estimating the percentage of lead exposure in young children that is directly attributable to water. For example, some have suggested that water accounts for 7% of lead exposure in toddlers, while others have estimated that the number could be as large as 20 percent. (Tab 30).

[11] Generally, risk assessment models assume that all drinking water could come from the tap, and could be drawn during times when lead-contaminated standing water is in the plumbing system.

[12] However, if levels of lead in drinking water were far higher than the LAL, consumers' exposure to water would of course be commensurately higher as well.

typically far more susceptible to lead exposure than are adults, as children are subject to both increased exposure and increased sensitivity to lead. (Tab 25; Tab 26; Tab 30).

First, children are more exposed to lead than adults, in part because they are more likely to have contact with and ingest lead dust, lead-laden soil, or lead paint chips. (Tab 25 at 2; Tab 26; Tab 27; Tab 36 at 2). Other factors also contribute to increased lead exposure for children, including the following: (i) children absorb lead in their digestive systems more efficiently than do adults; (ii) the bones of infants, which can store lead, may absorb lead at a far quicker rate than do the bones of adults; and (iii) children have a significantly faster metabolism than do adults, such that they breathe faster and ingest proportionately more food and water than adults do. (Tab 25; Tab 26; Tab 27; Tab 36).

Second, children are more sensitive to lead than adults, because lead interferes with normal processes of growth and development that occur in utero and during childhood. Whereas many effects of lead poisoning in adults are reversible, a child who is exposed to lead can experience alterations in growth and development — including brain development — that persist throughout the child's life. (Tab 25; Tab 37).[13] Children with nutritional deficiencies, especially deficiencies in iron and calcium, are believed to be most sensitive to lead toxicity.

Lead exposure is also particularly problematic for women who are likely to become pregnant, for pregnant women, and for nursing mothers. During pregnancy, lead that is stored in bones can be released; that lead, along with additional lead ingested during pregnancy, can cross the placenta, exposing the fetus to contaminants in the mother's blood. (Tab 25; Tab 27 at 4). In nursing mothers, lead can be passed along to infants through breast milk. (Tab 25 at 2). More hazardous, however, is use of lead-contaminated water for the preparation of infant formula from powders or concentrates, as parents often feed formula to newborns that has been combined with tap water. (*Id.*).[14] If parents first boil the water, for example, to reduce the level of pathogens such as bacteria, this has the unintended effect of concentrating (*i.e.*, increasing) the level of lead in water added to infant formula. Exposure through lead in infant formula is cause for concern because (i) formula is the sole source of nutrition for infants until food is introduced at about the age of six months; and (ii) infants have a relatively large fluid intake relative to an

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[13] For example, a study that followed a group of subjects from first grade into adulthood showed that those subjects who had high levels of lead in their teeth as children were seven times more likely not to graduate from high school. (Tab 38). Those subjects were also six times more likely to have reading scores at least two grades below expected, after adjustment for a number of factors including socioeconomic status and parental IQ. (*Id.*). These subjects also had higher absenteeism in the final year of high school, a lower class rank, poorer vocabulary and grammatical reasoning scores, longer reaction times, and poorer hand-eye coordination. (*Id.*)

[14] Although experts caution parents who mix tap water with formula to be aware of the issue of lead in the water supply, some have also expressed worry that were parents to refrain from using tap water in that process, they could deprive infants of fluoride. (Tab 28; Tab 39). Fluoride exists in tap water (but often not in bottled water) and is crucial to the development of healthy teeth. (*Id.*). Pediatricians recommend that children who do not receive fluoridated drinking water be given fluoride drops as supplements.

older child or an adult. These issues are all the more significant because a developing embryo, fetus and infant grow and change rapidly, such that exposure to any type of harmful substance can have heightened deleterious effects on that infant's later development. (Tab 25; Tab 27).

3. Amounts of Lead in the Bloodstream

A health provider can evaluate the amount of lead that exists in a person's blood by assessing the individual's blood lead level ("BLL"). The relationship between lead exposure and BLLs is a dynamic process, in which the BLL represents a product of recent exposures, excretion, and equilibration with other tissues, such as bone and soft tissue compartments. Currently, the Centers for Disease Control and Prevention ("CDC") defines an elevated blood lead concentration level as 25 micrograms per deciliter ("mcg/dL") of blood in adults and 10 mcg/dL in young children.[15] In general, the higher a child's BLL rises and the longer that heightened level persists, the greater the chance that the child will suffer long-term health effects, such as learning disabilities or behavioral problems. (Tab 24 at 1).

The health effects associated with lead in the bloodstream vary, depending upon an individual's BLL. Very high BLLs, such as those greater than 70 mcg/dL, may cause encephalopathy and death in children. (Tab 24; Tab 27). With respect to BLLs that are lower than those that cause clinical symptoms, it has been noted that children are at risk for a wide range of problems, including deficits in motor skills and academic skills, among others. (Tab 28; Tab 43 at 1518). The relationship between a child with a BLL above the 10 mcg/dL standard and deficits in IQ has been found to be consistent in studies conducted in many parts of the world. For every increase of 10 to 15 mcg/dL in BLLs during the first few years of a child's life, within the range of 5 to 35 mcg/dL, there is a lowering of the mean IQ of the child by 2-4 points. (Tab 44; Tab 45).[16]

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[15] There is extensive debate as to whether the CDC lead toxicity standard of 10 mcg/dL adequately protects the health of children. Most experts agree that toxicity occurs below this level; however, there is disagreement about the value of lowering the level for regulatory purposes. (Tab 40). One school of thought holds that a lower level is justified for regulatory decision making, because that level should reflect the amount of lead at which toxicity occurs. Advocates of this view note that the EPA has used the CDC toxicity standard as a guideline for environmental protection measures, and that the use of a lower standard may promote stronger preventive actions for populations of children. (Tab 41). A different school of thought holds that, because the medical community has traditionally used the CDC standard as a guideline for clinical practice, the standard should represent a BLL at which it is appropriate for an individual child to receive medical intervention. To that end, it has been noted that a lower standard would identify many children as being at risk, in that they would have BLLs between 5 and 10 mcg/dL, without there being any clear sense of what, if any, medical intervention should be taken toward those individual children. (Tab 42).

[16] Although most of this research was conducted after 1991, the year when the EPA promulgated the LCR, the EPA's lead drinking water standards are not strictly health-based. With respect to lead in drinking water, the EPA has set the Maximum Contaminant Level Goal, a (continued...)

Although more studies are needed to assess the relationship between BLLs at lower levels and IQ, there is an emerging consensus that there is no identified level of lead exposure below which there is "no effect" from lead. Most recent studies suggest that intellectual impairment in children may occur at BLLs below the CDC's 10 mcg/dL benchmark, (Tab 25; Tab 27; Tab 28; Tab 37 at 1515). Indeed, at least one study suggests that a change in IQ relative to a given change in lead concentration is *greater* for children whose lifetime average BLL is below 10 mcg/dL than for those whose average is above that level. (Tab 43 at 1517). That latter study indicates that in the range of 0 to 10 mcg/dL of blood lead there is a 7-point decrease in IQ. Although more study is needed, these results certainly point to the need to decrease any form of lead exposure, especially for children. (Tab 37).

Viewed in a historical perspective, the amount of lead to which American children are exposed has decreased dramatically over the last few decades. The most recent data from the CDC indicates that the percentage of United States children between the age of 1 and 5 years with BLLs above 10 mcg/dL fell from 88% to 2% between 1976 and 2000. (Tab 36 at 3; Tab 46). Similarly, from 1978 through 1999, the median blood lead concentration in United States children fell from 15 mcg/dL to 2 mcg/dL. (Tab 37). These facts, which evidence one of the more remarkable public health achievements of the last few decades, are attributable to many actions that have been taken to control lead exposure — perhaps most dramatically the removal of lead from gasoline, as well as many actions taken to remove lead from food, drinking water sources, and consumer products. (Tab 25; Tab 37). Some have pointed to these results in noting that the amount of lead that most children are exposed to today in the United States is far smaller than that of past years, and, as a result, that the present threat to American children from lead is a small one. (Tab 36).

Nevertheless, while national efforts have resulted in dramatic benefits in terms of reduced lead exposures, there are still unacceptable numbers of children nationally who have too much exposure to lead. Control of lead in the water supply is part of a larger effort, one that has been underway for the last 25 years, to reduce lead exposures from a number of sources that result in adverse health effects in children. (Tab 30). Despite recent gains in reducing the number of children with BLLs over the 10 mcg/dL standard, approximately 454,000 United States children aged 1 to 5 years old currently have BLLs above the standard. (Tab 26). Exposure to lead continues to be greatest among minority children, low income children,

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non-enforceable level based solely on the possible health risks of lead and exposure to it, at zero. (Tab 29). It did so because the EPA has not identified a level below which there is no effect from lead exposure. However, in 1991, the EPA set the LAL, the level at which water systems are required to take specific steps to control the corrosiveness of their water, at 15 ppb, because it found that this was the lowest level to which water systems could reasonably have been required to control lead in tap water given then-current technology and resources. (*Id.*). In evaluating the relationship between the LAL and BLLs, the EPA has estimated that a young child consuming an average amount of water at the 15 ppb level would theoretically have a BLL of 2.2 mcg/dL, far below the 10 mcg/dL CDC benchmark. (Tab 28). This result assumes no other sources of lead exposure in the child's immediate environment. Consumption of water with an LAL of greater than 15 ppb could result in much higher BLLs.

children living in larger urban areas, and children living in older houses — all factors that have particular relevance to many families in the District. (Tab 24; Tab 26).

4. Effects of Elevated Levels of Lead in the District

Recent studies have provided some indication that, in the District, a correlation has not been made between findings of elevated levels of lead in the water supply and corresponding increased BLLs in children. The District government has reported that of the 1,692 children under 6 years old tested for lead between January and April 2004, 2.1% had BLLs equal to or greater than 10 mcg/dL. (Tab 30; Tab 36). This percentage is similar to the national average.[17] There were 13 children screened by the District in early 2004 who reportedly were living in homes where the levels of lead in the tap water samples were more than 20 times the LAL; of these children, none had elevated BLLs. (Tab 36). Information was not available as to whether the children in those homes were ingesting tap water, nor whether the tap water samples were representative samples. At any rate, these results are in line with other lead testing results for the District's children that have been generated in the last few years and reported by the CDC. (Tab 25).

Although these numbers are a hopeful sign for the health of the District's children, experts have cautioned that the District's screening process could fail to take account of those children who are most greatly exposed to lead, but who are not provided the benefit of lead screening. Experts also have noted that, at any rate, even children with BLLs below 5 mcg/dL can experience negative neurocognitive or behavioral effects from lead. Certainly, given that there is no level of lead exposure that can be said to have no effect on children, these numbers should not lead one to believe that the presence of lead in drinking water is not a serious issue for District residents.

C. The Lead and Copper Rule

The regulatory requirements that are most directly related to the monitoring of the District's water supply for lead are contained in the LCR, (Tab 47), which is a set of regulations that were implemented by the EPA under the authority of the SDWA (42 U.S.C. §§ 300f to 300j-26). The following discussion is not meant to be a comprehensive overview of the LCR, but

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[17] However, these numbers are not strictly comparable to the national average, given that the national average is based on a statistically representative sample of the population, while the District's testing was performed on children whose parents brought them in for screening on voluntary basis. This could bias the District's testing results in several ways. It is possible that more affluent parents, whose homes have fewer lead hazards, were the majority of those who made use of lead screening services. Conversely, parents of children with known lead toxicity may have made increased use of screening services. It is also worth noting that the national average cited above came from results reported in the year 2000; given that the average BLL is trending downward over time, the "real" national average in 2004 may be lower. Were this to be the case, the percentage of children with elevated BLLs in the District could be higher than the national average at the present time.

instead provides a brief description of the most significant portions of the rule as it relates to the issues discussed in this report.[18]

The LCR sets forth acceptable levels for lead and copper in drinking water, in the sense that if a water system produces testing results that do not exceed those levels for a given monitoring period, the EPA has made a regulatory determination that the system is not required to take additional action to address the amount of those substances in the water supply.[19] Exceeding the LAL is not a *violation* of the rule; rather, it triggers the implementation of certain procedures, including, where appropriate, source water monitoring and treatment, public education regarding the lead exceedance, and the replacement of certain lead service lines. (Tab 47). The LAL is exceeded if the concentration of lead in more than 10% of tap water samples properly collected during any monitoring period is greater than 15 ppb. (Tab 47 at § 141.80(c)(1)).[20]

1. Consumer Tap Monitoring

Under the LCR, water systems such as WASA are required to monitor lead levels of consumers' tap water at six-month intervals, using specified methods, unless the system qualifies for what is known as "reduced monitoring," a status that allows the system to monitor for lead on an annual or triennial basis in certain circumstances and to collect tap samples from a reduced number of sample sites. (*Id.* § 141.86(d)). In brief, a system may qualify for reduced monitoring on an annual basis if it demonstrates that it has maintained a certain range of the State's[21] water quality parameters during each of two consecutive six-month monitoring periods (*Id.* § 141.86(d)(4)(ii)), or for three consecutive, one-year monitoring periods (*Id.*

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[18] For example, the LCR contains a number of sections that discuss issues including (i) monitoring for certain water quality parameters such as pH, alkalinity, calcium, conductivity, orthophosphate, silica, and temperature, (Tab 47 § 141.87); (ii) the undertaking of certain steps to control corrosion in the water supply, (*Id.* § 141.82); and (iii) the collection of source water samples, which help determine the contribution that source water makes to the level of lead existing in tap water, (*Id.* §§ 141.83(b), 141.88(a)-(b)). As these issues impact less directly on the issues discussed in the report, the corresponding provisions of the LCR are not discussed in this subsection.

[19] These "acceptable" levels are not meant to embody a health standard. According to the EPA, "the LCR is not designed to measure health risks to individual consumers, but is centered upon measuring overall corrosivity of the treated water using worst-case lead and copper sample site data as an indicator of the effectiveness of corrosion control treatment." (Tab 48 at 2).

[20] Stated differently, the LAL is exceeded when the "90th percentile" of all lead sample tests is at a level greater than 15 ppb. The formula to compute the 90th percentile lead level is found at 40 C.F.R. § 141.81(a)(3).

[21] As noted previously, the EPA directly oversees and regulates WASA's compliance with the LCR, unlike the situation in most other states, which have their own regulatory agencies that monitor such compliance. Therefore, when the LCR references a "State" and its duties, in the case of WASA, this refers to the EPA, not any arm of the District government.

§ 141.86(d)(4)(iii)). Additionally, any system that demonstrates for two consecutive six-month periods that the tap water lead level is less than or equal to 5 ppb (a level significantly below the LCR's 15 ppb LAL) and that the tap water copper level is less than or equal to 0.65 mg/L may reduce sampling to once every three years. (*Id.* § 141.86(d)(4)(v)).

In order to ensure that the appropriate number of monitoring sites for tap samples is available, the LCR requires each water system to complete a "materials evaluation" identifying the total number of lead service lines in its water distribution system. (*Id.* § 141.86(a)(1)). Upon completion of the materials evaluation, the water system identifies the requisite number of sampling sites at which it must test the water — in the case of WASA, 100 sites if subject to standard monitoring and 50 sites if subject to reduced monitoring. (*Id.* § 141.86(c)). Unless there is an insufficient number of them to complete the sampling pool, these sites must be single-family structures[22] that (i) contain copper pipes with lead solder installed after 1982, or contain lead pipes and/or (ii) are served by a lead service line. (*Id.* § 141.86(a)(3)). If this group of "tier 1 sampling sites" does not yield a sufficient sampling pool, the water system then looks to "tier 2 sampling sites," which are buildings and/or multiple-family residences that (i) contain copper pipes with lead solder installed after 1982 and/or (ii) are served by a lead service line. (*Id.* § 141.86(a)(4)). If either of these options does not provide enough sampling sites, the LCR outlines additional ways to expand the sampling pool. (*Id.* § 141.86(a)(5)). If a water system's distribution system includes lead service lines, as does WASA's, the water system is required, if possible, to draw 50% of its sampling from sites that contain lead pipes or copper pipes with lead solder, and 50% of the samples from sites served by a lead service line. (*Id.* § 141.86(a)(8)).

To collect monitoring samples, either the water system may collect "first-draw"[23] samples directly from the selected sites, or the system may allow residents to collect samples themselves after proper instruction on collection procedures. (*Id.* § 141.86(b)(2)). Each sample collected by a resident must be one liter in volume, must have stood motionless in the plumbing system for at least six hours, and must be collected from cold kitchen tap water or bathroom sink tap water. (*Id.*). Samples collected by the water system from the service line may be gathered in a number of ways, but must be one liter in volume and must have stood motionless in the lead service line for at least six hours. (*Id.* §§ 141.86(b)(2) & (b)(3)). The water system is required to collect follow-up tap samples from the same sampling site in which it collected a previous sample; if the system is unable to gain access to such sites, then it may collect the follow-up sample from a new site that shares the same targeting criteria and is within reasonable proximity to the original site. (*Id.* § 141.86(b)(4)).

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[22] If multiple-family residences comprise at least 20% of the structures served by the water system, the system may include these structures in its sampling pool. (*Id.* § 141.86(a)(3)).

[23] A "first-draw" sample is a one-liter sample of tap water, collected in accordance with the terms of 40 C.F.R. § 141.86(b)(2), which has been standing in the plumbing pipes at least six hours and is collected without flushing the tap. (*Id.*). While "second-draw" samples, those collected after allowing the tap to run for a number of minutes, are also collected as part of the lead monitoring program, they are not used for purposes of calculating whether a system has exceeded the LAL for a particular monitoring period.

To ensure an accurate determination of the 90th percentile lead level, the LCR provides a mechanism whereby flawed samples can be "invalidated," meaning that they do not count toward determining the 90th percentile or toward meeting other requirements of the LCR. Samples can be invalidated for one of four reasons: (i) the laboratory establishes that improper sample analysis caused erroneous results; (ii) the State determines that the sample was taken from a site that did not meet the LCR's site selection criteria; (iii) the sample container was damaged in transit; or (iv) there is substantial reason to believe that the sample was subject to tampering. (*Id.* § 141.86(f)(i)-(iv)). WASA must report to the EPA all samples, including those for which it requests invalidation, and must provide all supporting documentation for any sample invalidation. (*Id.* § 141.86(f)(2)). Any decision to invalidate a sample must be in writing, describing both the decision and the underlying rationale. (*Id.* § 141.86(f)(3)). The rule specifically provides that samples may not be invalidated solely on the grounds that a follow-up sample yields a test result higher or lower than that of an original sample. (*Id.*). If, after invalidating samples, a system has too few samples to satisfy the requisite number of sampling sites that must be tested in the monitoring period, the system must collect replacement samples in a specified time frame from the same locations as the invalidated samples. (*Id.* § 141.86(f)(4)). If it is not possible to collect samples from the same sites, such additional samples should be collected from locations other than those already used for sampling during the monitoring period. (*Id.*).

Within ten days after the end of each applicable monitoring period, WASA must report to the EPA certain information for all tap water samples, including (i) the lead level results of all tap samples and the location and selection criteria for each site, (ii) documentation for each tap water sample for which the system requests invalidation, (iii) the 90th percentile lead concentrations measured from among all water samples collected during each monitoring period, and (iv) a description of any site not sampled during previous monitoring periods and an explanation of why sampling sites have changed. (*Id.* § 141.90(a)(1)(i)-(v)).

2. Public Education[24]

The LCR requires water systems that have exceeded the LAL to inform system customers within sixty days about the health effects of lead, lead sources, and the steps that can be taken to reduce exposure to lead. (*Id.* § 141.85). These public education efforts specified by the LCR take many forms, and include billing inserts that are sent directly to consumers, pamphlets or brochures delivered to certain organizations, newspaper notices, and public service announcements. (*Id.* § 141.85(c)(2)). The public education program must be repeated every twelve months until the water system no longer exceeds the LAL, with the exception that the public service announcements must be repeated every six months. (*Id.* § 141.85(c)(3)). Within ten days after the end of each six- or twelve-month period, the system must submit a written report to the State demonstrating that the system has delivered the public education materials to

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[24] The public education requirements supplement other public notification requirements that apply to drinking water violations. (40 C.F.R. §§ 141.201 to app. C to subpt. Q).

customers and listing all newspapers, radio and television stations, and facilities and organizations to which the system delivered public education materials. (*Id.* § 141.90(f)(1)).[25]

The LCR specifies language for use in all printed materials distributed through a water system's public education program.[26] (*Id.* § 141.85(a)).[27] Additional information may be included in the materials, so long as it is consistent with the LCR-specified information and is in plain English that lay people can understand. (*Id.* § 141.85(a)(1)). Subject to State approval, a water system may delete information pertaining to lead service lines only if there are no lead service lines anywhere in the water system service area. (*Id.*).

A water system must begin delivering public education materials within sixty days of exceeding the LAL. (*Id.* § 141.85(c)(2)). The water system must insert notices in each customer's water utility bill that contain certain LCR-specified language and must also include an alerting message in large print on the water bill itself. (*Id.* § 141.85(c)(2)(i)). If the water system has a billing cycle that does not include a billing within those sixty days, or if major changes to the billing system would be necessary to insert the information, then the water system may use a separate mailing to deliver the information, so long as the information is delivered to each customer within the sixty days. (*Id.*).

Certain LCR-specified language must also be submitted to the editorial departments of the major daily and weekly newspapers circulated in the community. (*Id.* § 141.85(2)(ii)). Pamphlets and/or brochures containing certain of this language must be delivered to a number of facilities and organizations, including the following: schools; health

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[25] If a system has previously submitted the list of all newspapers, radio and television stations, and facilities and organizations to which the system delivered public education materials, it need not resubmit such a list, so long as there have been no distribution changes and the system certifies that the public education materials were distributed to the previously submitted list. (*Id.* § 141.90(f)(2)). The State may nevertheless require a resubmission. (*Id.*).

[26] This language is outlined in Section 141.85(a)(1) of the LCR.

[27] The LCR provides that a "water system *shall* include the following *text* in all of the printed materials it distributes through its lead public education program." (Tab 47 § 141.85(a)(1) (emphasis added)). The EPA considers the inclusion of this LCR-specified language to be mandatory, (Tab 49 at ¶ 71; Tab 50 at 7, 26), and this report similarly adopts such posture for its analysis.

Covington notes in passing, however, that it is aware of an argument for a different interpretation of this rule. When describing delivery requirements for public education materials, the LCR instructs water systems "to deliver the *information* in [Section 141.85(a)(1).]" (Tab 47 § 141.85(c)(2) (emphasis added)). The argument is that this reference in Section 141.85(c)(2) to LCR-specified *information* — read in conjunction with the LCR's invitation that water systems may include additional information in education materials, (Tab 47 § 141.85(a)(1); Tab 50 at 26) — permits water systems to both add to *and* modify LCR-specified language in its public education materials without violating the LCR, so long as the information does not conflict with the meaning of the LCR-specified language.

departments; local Women, Infants, and Children and/or Head Start Programs; hospitals; clinics; pediatricians; family planning facilities; and local welfare agencies. (*Id.* § 141.85(c)(2)(iii)). Public service announcements, which include certain LCR-specified information, must also be submitted to at least five of the radio and television stations with the largest audiences that broadcast to the community served by the water system. (*Id.* §§ 141.85(b), 141.85(c)(2)(iv)).

A water system may discontinue delivery of public education materials if the system has not exceeded the LAL during the most recent six-month monitoring period. (*Id.* § 141.85(c)(6)). The system must recommence such public education if it subsequently exceeds the LAL during any monitoring period. (*Id.* § 141.85(c)(6)).

Additionally, a water system that exceeds the LAL must offer a means to sample the tap water of any customer who requests monitoring. (*Id.* § 141.85(d)). The LCR does not, however, require the system to pay for the collection or analysis of the sample, nor is the system required to collect and analyze the sample itself. (*Id.* § 141.85(d)).

3. Lead Service Line Replacement

A water system must replace some of its lead service lines if it continues to exceed LALs after installing corrosion control treatment and completing source water monitoring and treatment. (*Id.* § 141.84(a)). Within twelve months of exceeding the LAL, the system is required to demonstrate in writing to the State that it has conducted a materials evaluation to identify the number of lead service lines in its distribution system. (*Id.* § 141.90(e)(1)). The system must also provide a lead service line replacement schedule. (*Id.*). The LCR requires the water system to replace at least 7% of the lead service lines in its distribution system annually from the time the replacement program begins. (*Id.* § 141.84(b)). The State may accelerate the schedule, if feasible, but it must notify the system in writing of the shorter schedule within six months after the lead service line replacement program is triggered. (*Id.* § 141.84(e)). The system is not required to replace a service line if the lead concentration in all properly collected service line samples from that individual line is no greater than 15 ppb. (*Id.* § 141.84(c)).

The LCR only requires the water system to replace the portion of the lead service line that it owns. (*Id.* § 141.84(d)). If the system does not own an entire lead service line that needs to be replaced, the system must notify the line's owner, or the owner's authorized agent, that the system will replace the portion of the service line owned by the water system. (*Id.*). The system must offer to replace the private owner's portion of the line; however, the system is not required to bear the cost of replacing the privately-owned portion. (*Id.*). If a water system does not replace the entire service line, it must provide notice to the residents of all buildings serviced by the line that they may experience a temporary increase of lead levels in their drinking water, and it must provide guidance on measures consumers can take to minimize their exposure to lead. (*Id.* § 141.84(d)(1)). Further, the LCR requires the water system to inform residents that it will collect a sample from each partially-replaced service line for lead content analysis, and collect the sample within 72 hours of the completion of the partial replacement. (*Id.*). Within three business days of receiving the lead content analysis results from that sample, the system must report the results to the owner and residents served by the line. (*Id.*). The system is also required to submit a report to the State within the first ten days of the month following its receipt

of the laboratory results verifying all partial lead service line replacement activities that have occurred. (*Id.* § 141.90(e)(4)).

The water system must report to the State (or the EPA) that it has satisfied the LCR's requirement to replace at least 7% of the initial service lines within twelve months of exceeding the LAL. (*Id.* § 141.90(e)(2)(i)). Alternatively, the system can report that it has conducted sampling that demonstrates that the lead concentration in service line samples from individual lines is less than or equal to 15 ppb, and that the total number of lines meeting the criteria, in combination with the number of lines physically replaced, meets the 7% requirement. (*Id.* § 141.90(e)(2)(ii)). Thus, the 7% annual replacement total can include service lines that test under the 15 ppb lead limit but that have not been physically replaced. As noted earlier, this is often referred to as "testing in lieu of replacement." The system's annual report to the State must include the number and location of each physically replaced service line, as well as, in the case of those lines tested in lieu of replacement, the sampling method, water lead concentration, and date and location of each lead service line sampled. (*Id.* § 141.90(e)(3)).

The water system may terminate the replacement program whenever first-draw samples collected and reported pursuant to its consumer tap monitoring program no longer exceed the LAL during each of two consecutive monitoring periods. (*Id.* § 141.84(f)). If, however, subsequently collected samples for a given monitoring period exceed the LAL, the lead service line replacement program shall recommence. (*Id.*).

V. Findings of the Report

A. 2000-2001 Monitoring Period

Prior to the start of the 2000-2001 monitoring period, in part because the 90th percentile of lead and copper levels for the District's water had been well below the LAL for a number of years, the EPA had placed WASA and the Aqueduct on a less frequent schedule for monitoring lead and copper. This reduced monitoring status permitted WASA to test 50 sites for lead during a one-year span (as opposed to being required to test 100 sites every six months, which it had previously been required to do). WASA viewed this new status as a type of compliment for its successful efforts in prior years in meeting EPA water quality standards. (Interview of Michael Marcotte, May 25, 2004). WASA also believed that reduced monitoring would promote a cost and time savings, because WASA always had difficulty in collecting lead monitoring samples from volunteers. The need to interact with a lesser number of volunteers would therefore save resources. (Interview of Michael Marcotte, May 25, 2004).

WASA's eligibility for reduced monitoring appears to have been first communicated by Mr. Rizzo of the EPA to Ms. Bhat in an August 1999 e-mail. (Tab 51).[28] In the e-mail, Mr. Rizzo noted that the LCR required that, going forward, monitoring samples must be taken in the months of June, July, August and September. (*Id.*). This meant that, for the 2000-2001 monitoring period, which spanned from July 1, 2000 through June 30, 2001, WASA could collect samples in the months of July, August and September 2000, as well as in June 2001, if necessary. At WASA, testing for lead during this period was overseen by Ms. Bhat, under the supervision of Mr. Boateng. In the latter part of the monitoring period, Ms. Bhat was assisted by Mr. Krough, who had joined the Water Quality division as a technician in the spring of 2000.

In the 2000-2001 monitoring period, as she had in the past, Ms. Bhat received lead monitoring results from Ms. Turner of the Aqueduct via e-mail, on a rolling basis. In a February 2000 e-mail, Ms. Bhat had asked Ms. Turner to alert her immediately any time lead concentration in any sample was significantly greater than 15 ppb or in circumstances where a second-draw sample for a residence was higher than a first-draw sample.[29] (Tab 55). Ms. Bhat

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[28] Formal approval for this status appears to have been first noted in a February 2000 letter from the EPA to the Aqueduct. (Tab 52 at 5).

[29] This request by Ms. Bhat corresponds to general concerns that were expressed by WASA both internally and to the Aqueduct in 2000 and afterwards, regarding the pace at which the Aqueduct provided WASA with test results. For example, in a July 2000 memorandum to Mr. Stowe of the Aqueduct, Ms. Bhat complained about the Aqueduct's delay in a number of respects, including in the provision of lead monitoring results. Ms. Bhat noted that "WASA cannot fulfil[l] its obligations to its customers when information/reports are not received in a timely manner." Ms. Bhat's memorandum stated that the lateness of the test results "renders insufficient time for review and timely corrective actions." (Tab 53). Ms. Bhat requested in her memorandum that, in the future, the Aqueduct provide lead monitoring results to WASA one day after the date that samples were tested. (*Id.*). Internally at WASA, Ms. Bhat supported the idea (continued...)

explained that such notification was important, even if WASA was not in danger of exceeding the LAL for the year, as the results could pose a health risk for the customer, who should be instructed to take corrective action right away. (*Id.*). Ms. Turner agreed that Ms. Bhat would be notified immediately if a lead monitoring result exceeded the LAL or was unusual in some other way. (*Id.*).

1. Participants in the Lead Monitoring Program

In order to select the particular residences from which WASA would gather samples for its lead monitoring program, Ms. Bhat apparently used a recurring list of volunteers, numbering over 100 residences, that had been in existence at WASA since the LCR's creation in 1991. (Interview of Silas Obasi, April 20, 2004; Interview of Curtis Cochrane, March 31, 2004). The LCR requires that in seeking volunteers, WASA must look to those whose homes contain either copper pipes with lead solder installed after 1982 or lead pipes, and/or that the volunteers' homes are served by a lead service line. To satisfy this requirement, WASA (and its predecessor WASUA) used statistics generated from the Weston Report, a past survey of lead service lines in Washington, D.C., in order to confirm whether the homes of its volunteers had lead service lines. (Interview of Curtis Cochrane, March 31, 2004).[30] According to Ms. Bhat, the EPA had been provided with a copy of WASA's volunteer list prior to the start of the 2000-2001 monitoring period. (Tab 57 at 1924-25).

The content of WASA's volunteer list shifted over the years, as some participants declined to participate in the lead sampling program and others were added. Most often, new volunteers would be added to the list after calling WASA with water quality questions. (Interview of Jerome Krough, June 18, 2004). On some of those occasions, a WASA employee would ask whether the caller would like to have his or her home tested for lead and copper and, if the caller responded affirmatively, the employee would fill out a questionnaire about the caller's home, to ensure that it met the LCR-specified criteria for inclusion. (Interview of Jerome Krough, June 18, 2004). Convincing District residents to become volunteers appears to have been difficult, however, and on a number of occasions Ms. Bhat complained to the EPA

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that WASA should develop its own in-house sampling and testing capability, so that it could better control the sampling process and receive testing results more quickly. (Tab 54). According to two individuals whom Covington interviewed, the difficulty that Ms. Bhat had in receiving information from the Aqueduct or in communicating with Aqueduct personnel may have been caused by her inability to get along with certain Aqueduct employees (some of whom she worked with during her prior employment at the Aqueduct). (Interview of Jerome Krough, June 18, 2004; Interview of Michael Marcotte, May 25, 2004).

[30] Mr. Cochrane noted that the Weston Report may not have been a completely reliable source in determining whether a specific residence was serviced by a lead service line, due to the lack of specific data regarding the location of lead service lines existing at the time of the report's compilation. (Interview of Curtis Cochrane, March 31, 2004). Recent newspaper reports have likewise criticized the accuracy of the Weston Report due to its reliance upon educated guesses in some circumstances in order to determine whether certain homes were serviced by a lead service line. (Tab 56).

and to others at WASA about this. (Interview of Elizabeth Lawson, April 22, 2004; Tab 58). Perhaps because of the difficulty in recruiting volunteers, WASA had struggled during prior monitoring periods in providing the Aqueduct with a sufficient number of samples in advance of the end of the period.[31]

Covington reviewed various versions of this volunteer list spanning over a number of years. The lists include anywhere from 90 to more than 150 addresses, a majority of them from Northwest or Northeast Washington, D.C. There is one version of the list that appears to have existed closest to the start of the 2000-2001 monitoring period; this list identifies residences that apparently constitute the majority of homes for which lead monitoring samples were collected during the period. (Tab 60).

Mr. Krough has made a number of allegations regarding the content of the volunteer list used to generate participants in the 2000-2001 monitoring period. Mr. Krough stated that he began to participate in the lead monitoring process by the summer of 2000. As he and Ms. Bhat did not get along well, the two did not communicate with each other at the time about the content of WASA's volunteer lists or about the sample collection and reporting process. (Interview of Jerome Krough, June 18, 2004). Instead, Mr. Krough stated that he would go to Ms. Turner of the Aqueduct when he had any questions about the process. (Interview of Jerome Krough, June 18, 2004). Mr. Krough claimed that, as he began contacting members of the volunteer list in the early summer, he found that many of the addresses were outdated, and that the list included a number of incorrect phone numbers, participants who had been deceased for several years, and participants who had never heard of or participated in the lead monitoring program. (Tab 61 at ¶ 7; Interview of Jerome Krough, June 18, 2004). Among other allegations, Mr. Krough claimed (i) that Ms. Bhat's record keeping with regard to these lists was very disorganized; (ii) that the same sites were rarely used in consecutive monitoring periods; and (iii) that there was no indication that the sites had been approved by EPA. (Tab 61 at ¶ 7; Interview of Jerome Krough, June 18, 2004). Mr. Krough also claimed that other WASA employees told him "that Ms. Bhat would bring in samples of unknown origin for use" for the monitoring program. (Tab 61 at ¶ 7; Interview of Jerome Krough, June 18, 2004).[32]

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[31] For example, an e-mail from Aqueduct employee Anthony Pasquale to Ms. Bhat on July 6, 1999, notes that although WASA had provided just over the number of samples required (200 samples, including first and second-draw samples) by the end of the most recent monitoring period (June 30, 1999), some of those samples were actually collected on dates outside of the monitoring period. (Tab 59). As a result, Mr. Pasquale noted that WASA actually was 10 samples short of the required number as of the date of his e-mail. It is unclear as to how this problem was addressed during that monitoring year. (*Id.*). In any event, this incident underscores the difficulty that WASA appears to have had in providing a sufficient number of samples to the Aqueduct on a timely basis.

[32] When asked about this particular claim in an interview, Mr. Krough admitted that he recalled only one occasion, in the 2001-2002 monitoring period, on which he saw Ms. Bhat bring a sample to the office that did not include an address. He stated that he did not know whether the (continued...)

Covington was not able to verify the accuracy of some of these allegations. Handwritten notes on one of the volunteer lists that Covington reviewed indicate that many of the phone numbers associated with these addresses were disconnected at times, or that WASA was otherwise having difficulty contacting the volunteers. (Tab 60). In other instances, a version of the list would have the same participants listed a number of times. In general, it appears that WASA's volunteer lists were maintained and expanded in an ad hoc fashion, with few records kept as to how such volunteers were selected or why their homes were believed to qualify for the monitoring program.

2. Lead Monitoring Samples Collected by WASA and Submitted to the EPA for the 2000-2001 Monitoring Period

The nature of the lead monitoring records available from the 2000-2001 monitoring period makes it difficult to determine the precise number of lead monitoring samples that were both tested by the Aqueduct and reported to the EPA during that time.[33] However, in comparing various forms of testing data from the time period with other documentary evidence, it is possible to gain an understanding of what occurred during this process.

Covington reviewed two sets of sampling results from the Aqueduct, both of which purport to be a complete listing of the laboratory results of samples it received from WASA, collected pursuant to the LCR in the 2000-2001 monitoring period. The first set of results reviewed by Covington was a document that the Aqueduct provided to the DCOIG in February 2002. These results indicated that, during the monitoring period, the Aqueduct provided WASA with lead monitoring results for 118 samples. (Tab 62). The 118 samples purport to have been drawn from 62 locations or addresses. (*Id.*).[34] For six of those locations or

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lack of an address in that case was due to customer error or an error made by Ms. Bhat. (Interview of Jerome Krough, June 18, 2004).

[33] These records only provide an indication of those samples officially recorded either by WASA or the Aqueduct. They do not take into account samples that WASA attempted to collect, but was unable to collect for various reasons. For example, e-mail correspondence between Ms. Bhat and Ms. Turner in March 2001 indicates that Ms. Bhat was inquiring about the status of results for four samples that WASA had provided to the Aqueduct in September and October 2000. Ms. Turner responded that the Aqueduct did not have any record of having received these four samples. Ms. Bhat later explained in a hearing that these four volunteers had simply failed to provide samples to her in the summer of 2000. After consulting with Mr. Rizzo, in June 2001, Ms. Bhat attempted to take samples from these residences or residences located near each of these four sites; she did so successfully in three of those cases. (Tab 57 at 1842-50).

[34] The actual number of specific locations or addresses may be fewer, because in at least two instances (Sample Nos. 00090037-00090038 and 0100191-00100192 and Sample Nos. 00081276-000811277 and 001000185-001000186), the Aqueduct appears to have tested two samples from the same address that were provided by WASA. WASA appears to have used "first-draw" results from both sets of these same addresses in the final lead monitoring results that it provided to the EPA in August 2001. Covington found no explanation for the testing of two samples from the same address. As a technical matter, because WASA submitted the exact (continued...)

addresses, while "second-draw" sampling results were provided by the Aqueduct, WASA's records indicate that, for whatever reason, perhaps because the first-draw results were never provided by the customer to WASA, "first-draw" sampling results were not provided by the Aqueduct.[35] The second-draw results relating to these samples do not appear to have been counted in the final results provided to the EPA at the end of the monitoring period, although some of these residences later provided additional first and second-draw test results in June 2001, which were reported to the EPA. (*Compare* Tab 62, Tab 63, and Tab 64; Tab 57 at 1838, 1840-41).

Covington also reviewed a second table of results provided by the Aqueduct that purported to include all samples analyzed during the July 1, 2000 through June 30, 2001 monitoring period. This second set of results was provided directly to Covington by the Aqueduct during the investigation. (Tab 65). To a great degree, the results listed on this second document are similar to those the Aqueduct provided to the DCOIG in 2002. However, for the months in which the LCR permits samples to be taken for consideration as part of the lead monitoring process, this second set of results included eight additional samples not included in the results provided to the DCOIG.[36] Five of these eight samples may have been first-draw

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number of samples required by the LCR for this monitoring period (50), the inclusion of two sets of results from two of the same addresses means that WASA did not provide testing data from a sufficient number of sample sites for the year.

In addition, in comparing the Aqueduct's results with WASA's records, there were other circumstances that made it difficult to interpret the testing data for the monitoring period. For example, in another instance (Sample Nos. 0106060-001 and 0106060-002), the Aqueduct appears to have included identical sampling results for the same address, which are listed as having been provided to WASA on both July 6 and July 16, 2001. This appears to have been a mistake, such that these two sets of results actually represent the product of only one test of one sample. In two other instances, the results for a particular location tested by the Aqueduct are not accompanied by an address, but instead by notations such as "Kitchen - Street Address Not [Provided]" or "Bathroom — Street Address Not [Provided]." In both of those cases, the samples listed were identified as "second-draw" results, and there appear to have been no corresponding first-draw results for the location provided by the Aqueduct. (*Compare* Tab 62, Tab 63, and Tab 64).

[35] These results are Sample Nos. 00081157, 00090939, 0090941, 00100168, 00100175 and 00100176, one of which tested above the LAL at 104 ppb. (*Compare* Tab 62, Tab 63, and Tab 64). The space where the entry for the corresponding set of first-draw results would have been made is either left blank or is marked "NA." Additionally, in one case (Sample No. 00090940), the Aqueduct has a record of what appears to be a second-draw sample from an address that already had both first and second-draw results recorded for the monitoring period.

[36] These include Sample Nos. 00090924, 00090925, 00090926, 00090929, 00090930, 00090933, 00090934 and 00100180. (Tab 65). The first three of these samples may be missing first-draw samples from the first set of Aqueduct records, although, for two of those addresses, Ms. Bhat said that she never received first-draw samples from the customer. (*Compare* Tab 63, Tab 64, Tab 65, and Tab 57 at 1838, 1840-41).

results; one of them (Sample No. 00090924) tested well over the LAL at 113 ppb. (*Compare* Tab 62, Tab 63, Tab 64, and Tab 65). In each instance, while each of these particular first-draw results was not included the final sampling results WASA provided to the EPA in August 2001, WASA did provide other first-draw results for those addresses to the EPA at that time. It is unclear as to why two sets of first-draw results were tested for these addresses. In any event, there is no instance, with respect to these eight addresses, in which WASA substituted a sub-LAL test result for a test result that exceeded the LAL.

Therefore, from a review of both the Aqueduct's and WASA's records, it appears that the Aqueduct provided first-draw testing results to WASA for 55 locations or addresses in the 2000-2001 monitoring period. WASA had collected these samples during the warm weather months of July, August and September of 2000 and June of 2001. (Tab 66 at 00019). The LCR requires that lead monitoring samples be taken during these particular months, months where warmer temperatures contribute to the maximum level of lead solubility in the water. (*Id.*).

Of the first-draw samples that WASA received from the Aqueduct during this monitoring period that were included in the final results it provided to the EPA, 40 had been collected by WASA in either August, September or October 2000.[37] (Tab 62; Tab 63; Tab 64). WASA appears to have been provided with the results for those samples by the Aqueduct on three occasions, the last of which was on or about October 25, 2000. (Tab 62; Tab 63; Tab 64). Of those 40 samples, only two exceeded the LAL, although the two had very high lead results. (Tab 62; Tab 63; Tab 64).[38]

As a result, by the end of October 2000, based upon the lead monitoring results it had received for the 2000 portion of the 2000-2001 monitoring period, neither Ms. Bhat nor others at WASA would have been likely to anticipate that the 90th percentile of the lead

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[37] Five first-draw samples taken by WASA during the monitoring period and included in the final results sent to the EPA appear to have been collected on October 3, 2000 — during a month in which, according to the LCR, samples should not be collected. (Tab 65). For all but one of these samples, the results of lead testing were non-detectable, while for the other (Sample No. 00100177), the results were 128 ppb — a result many times over the LAL. (*Id.*). As such, were these samples to have been collected a few days prior, within the dictates of the rule, it would appear unlikely that any corresponding temperature change would have markedly affected whether any of the samples did or did not exceed the LAL. On the other hand, this fact is another example of how WASA appears to have struggled to collect an appropriate number of samples within the time dictates of the rule.

[38] More specifically, on or about September 28, 2000, WASA was provided with first-draw results for 20 samples that were collected in late August or early September 2000. One of those samples, Sample No. 00081347, exceeded the LAL by testing at the high rate of 119 ppb. (*Id.*). On or about October 23 and 25, 2000, WASA was provided with 20 more first-draw sample results for samples collected in late September through early October 2000. (*Id.*). One of those samples, Sample No. 00100177, exceeded the LAL by testing at the high rate of 128 ppb. (*Id.*).

monitoring results for the entire period might come close to exceeding the LAL.[39] With a minority of samples needing still to be collected in the testing period, WASA then waited until mid- to late-June 2001 to collect the remaining samples. The reason for this delay is unclear, given that in early 2000, when discussing the upcoming 2000-2001 sampling process with Ms. Turner, Ms. Bhat planned to have finished taking all samples for the monitoring period by September 2000. (Tab 55).

The late collection of these June 2001 samples had significance. Because they were taken so close to the end of the monitoring period, if enough of these samples tested above 15 ppb (as many later did), WASA would learn only at the very end of the testing period that it would exceed the LAL. Thus, WASA would have little advance knowledge and little ability to plan for the consequences of such an exceedance. In any event, on or about June 13, 22, 26 and 27, Mr. Krough and perhaps others in the Water Quality Division collected additional samples, which were then sent to the Aqueduct for testing. (Tab 62; Tab 67 at 87; Interview of Jerome Krough, June 18, 2004). On June 30, 2001, the lead monitoring period ended.

On July 10, 2001, WASA first became aware of some of the results for the samples collected in June 2001. On that date, Ms. Turner sent an e-mail to Ms. Bhat ("the July 10 e-mail"), in which she noted that seven of the 15 samples collected from locations or addresses in June had tested above the LAL. (Tab 68).[40] (WASA appears to have received the actual results of testing on these additional 15 first-draw samples on or about July 16, 2001). Upon receiving this e-mail, with the monitoring period now complete, Ms. Bhat would have been aware for the first time that WASA was in jeopardy of having greater than 10% of its testing results exceed the LAL. Ms. Bhat later testified that she did not forward Ms. Turner's July 10 e-mail immediately to Mr. Boateng or to Mr. Marcotte, because her understanding of her

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[39] The second set of Aqueduct lead monitoring results that Covington reviewed indicates that WASA took 55 additional lead and copper samples during the monitoring period, including some from drinking fountains or fire hydrants. These samples were collected during months that would not permit the samples to be considered for inclusion in results collected pursuant to the LCR (*i.e.*, the samples were collected from December 2000 through May 2001). Although it is unclear as to how many of these results were first-draw or second-draw samples, nine of the 55 samples tested over the LAL. (Tab 65). Four of those nine were well above the LAL, at levels greater than 60 ppb. (*Id.*). In hindsight, these results, taken well into mid-2001, may have been the first indicators of an increasing upward trend in lead levels in District drinking water. Yet, nothing in the LCR required regulatory action to be taken regarding these samples, and it does not appear that they spurred any action at WASA.

[40] According to a February 2004 letter from the EPA to Congressman Tom Davis, Chairman of the House Committee on Government Reform, WASA was required to report results for the monitoring period by July 10, 2001 — ten days after the close of the monitoring period — and did so one day before, on July 9. (Tab 69). Yet in light of the fact that WASA did not receive an indication from the Aqueduct as to the results of the June testing data until the next day, July 10, it is unclear what results, if any, WASA provided on July 9 to the EPA. As is discussed later in this subsection, WASA provided official results for the period to the EPA on August 6, 2001.

role as Water Quality Manager was that she was not to forward such data to her supervisors, but was to analyze such data and to later provide a final evaluation to her supervisors. (Tab 70 at 501). She stated that she had conversations with Mr. Boateng near the time of the e-mail, in which she provided the gist of its information to him (Tab 71 at 93), although Mr. Boateng denies this.

One week later, on July 17, Ms. Bhat responded to Ms. Turner's July 10 e-mail. In her response, Ms. Bhat indicated that WASA was "investigating" the high lead levels for the seven samples listed in the July 10 e-mail. (Tab 68). Ms. Bhat further stated that on that day, WASA planned to send Ms. Turner new samples from the customer tap and the corresponding meter for four of these seven sites. (*Id.*). Ms. Bhat noted that the other three residents were on vacation, such that WASA had not been able to collect new samples from them during the past week. (*Id.*). She said that WASA would attempt to do so in the week to come. (*Id.*). In the meantime, Ms. Bhat asked that, by the end of that week, Ms. Turner both re-test the original seven first-draw samples for the locations listed in the July 10 e-mail and also reanalyze the four new samples that Ms. Bhat was providing that day. (*Id.*). Later in the day, Ms. Turner provided Ms. Bhat with quality control information for the samples. (Tab 72). Ms. Turner stated that the Aqueduct would soon analyze the new samples that had been provided by Ms. Bhat that day and would reanalyze all of the original samples listed in the July 10 e-mail. (*Id.*).

On the same day, July 17, Ms. Bhat forwarded to Mr. Boateng and Mr. Marcotte the string of e-mails between Ms. Turner and herself from July 10 and 17. (Tab 68). Although Ms. Bhat has stated that she had previously informed Mr. Boateng of the substance of the July 10 e-mail, the text of Ms. Bhat's e-mail on July 17 states that it is meant "to inform" Mr. Boateng and Mr. Marcotte of those high lead results — text that is suggestive that Ms. Bhat was providing the information for the first time. (*Id.*). Ms. Bhat stated that there were now nine samples in all that had a lead concentration above the LAL for the monitoring period: the seven listed in the July 10 e-mail, plus the two that had been collected in the summer of 2000. (*Id.*). Although Ms. Bhat stated to her supervisors that she was "investigating" these samples, she also stated that "[u]nless on investigation it is found that the high lead samples meet sample invalidation criteria which may put us in compliance," WASA would exceed the LAL for the year. (*Id.*). Therefore, she explained, WASA would likely be required to increase its lead monitoring in the future and to deliver public education materials to customers, pursuant to the LCR. (*Id.*)

This e-mail from Ms. Bhat appears to have generated little or no response from her supervisors, Mr. Boateng and Mr. Marcotte, despite the fact that it indicated that WASA likely would soon have to deal with the regulatory consequences of a LAL exceedance. In an interview, Mr. Boateng recalled receiving the e-mail, and he said that it was the first time he had received any indication from Ms. Bhat that WASA might exceed the LAL for the monitoring year. (Interview of Kofi Boateng, April 7, 2004). Mr. Boateng stated that, at this time, lead monitoring was not an issue that occupied his attention, as his attention was focused on water main breaks or on other administrative matters. (*Id.*). He recalled that after reading Ms. Bhat's e-mail, he called her, thanked her for the information, and asked her to keep him updated as to the final results for the monitoring period. (*Id*; Tab 73 at 1073-82). Mr. Boateng said that he took no steps to prepare for the possibility that WASA could be required to begin a lead service

line replacement program or to generate public education materials regarding lead. (Tab 73 at 1080). He recalled that he may have had some discussion with Mr. Marcotte regarding the high lead results at this time, but did not recall the content of these conversations. (Tab 73 at 1081).[41]

For his part, Mr. Marcotte recalled calling Mr. Boateng after receiving Ms. Bhat's e-mail regarding the possible exceedance, which he said was the first communication from Ms. Bhat that he had received on this issue. (Interview of Michael Marcotte, May 25, 2004; Tab 75 at 1331). Mr. Boateng told Mr. Marcotte that Ms. Bhat was reviewing quality control data regarding some of the samples. (*Id.*). Having received Ms. Bhat's e-mail, and having talked with Mr. Boateng about it, Mr. Marcotte did not have any conversation with Ms. Bhat. (Tab 57 at 1331-32). (For her part, Ms. Bhat has stated in a hearing[42] that she received no immediate response from either Mr. Boateng or Mr. Marcotte to this e-mail). (Tab 76 at 134-35).

More than a week later, on July 25, 2001, Ms. Turner sent Ms. Bhat the results of the re-testing of six of the seven first-draw samples listed in the July 10 e-mail. (Tab 77).[43] Upon re-testing, each of the samples had produced results that again exceeded the LAL — indeed, in each case, the re-tested results were slightly higher than the results from the original samples. (*Id.*). Although this e-mail from Ms. Turner clearly states that she had "reanalyzed" these sample results at Ms. Bhat's request, in the Aqueduct's written responses to questions provided by Covington, the Aqueduct stated that "WASA never asked to have any samples retested" for this monitoring period. (Tab 77; Tab 78). Without the ability to interview Aqueduct personnel, Covington was unable to reconcile this apparent inconsistency.

In any event, it seems clear that as of July 25, 2001, nine of the first-draw samples that WASA had received from the Aqueduct had tested above 15 ppb — in some cases, more than once. Therefore, assuming each of these samples was reported to the EPA, the 90th percentile of WASA's lead sampling results would exceed the LAL for the testing year.

On the next day, July 26, 2001, according to Ms. Bhat, Mr. Marcotte directed her to meet with him, Mr. Boateng, and Mr. Krough in Mr. Marcotte's office. (Tab 76 at 137-38).

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41 On the following day, July 18, Mr. Boateng recommended to Mr. Marcotte that Ms. Bhat be fired. (Tab 74 at 343). Mr. Boateng stated that in discussing this recommendation with Mr. Marcotte, he did not refer to Ms. Bhat's July 17 e-mail regarding the results of lead monitoring. (*Id.*).

42 Unless otherwise noted, when the report references statements made in a hearing, deposition, affidavit, or other form associated with a legal proceeding, it is referring to proceedings or materials associated with *Bhat* v. *Washington DC Water & Sewer Auth.*, Case No. 2003-CAA-00017, an administrative proceeding currently before the Department of Labor, which arose out of the circumstances surrounding Ms. Bhat's termination as a WASA employee in early 2003.

43 Ms. Turner also noted in her e-mail that the results for the new set of samples that Ms. Bhat collected in July from a few homes were still in the "analysis phase." (Tab 77).

The meeting regarded a separate issue that WASA was dealing with at the time, one that involved a DCOIG inquiry into the quality of drinking fountain samples that had been taken from WASA's Blue Plains facility. (*Id.*). Ms. Bhat has stated that, at this meeting, she was not asked at all about the lead monitoring process, or about her July 17 e-mail that had mentioned that WASA might exceed the LAL for the year. (*Id.* at 141). Her testimony gives no indication that Ms. Bhat raised the issue at her own initiative.

The next development regarding lead monitoring results occurred on August 3, 2001. On this date, Mr. Krough e-mailed to Ms. Bhat a chart of test results. This chart mirrors the results that were subsequently sent to the EPA a few days later, on August 6, 2001, which are discussed more fully below. (Tab 79). The chart identifies only four first-draw samples as exceeding the LAL. (*Id.*). As such, it appears that, between July 25, 2001 and August 3, 2001, Ms. Bhat and/or others at WASA made a decision not to include in the final lead monitoring results reported to the EPA five first-draw results that had tested above the LAL. The possible reasons for this decision, and the method in which it was made, are discussed more fully below.

3. WASA's Provision of Official Lead Monitoring Results to the EPA, and the Rationale for the Omission of Certain Sampling Results

a) Preparation and Submission of the August 6 Letter

On August 6, 2001, WASA provided its official results for lead monitoring to the EPA for the 2000-2001 monitoring period. This submission was made in a letter from Mr. Marcotte to George Rizzo of the EPA. (Tab 80). Ms. Bhat stated that her secretary, under her guidance, drafted this letter. (Tab 81 at 105; Tab 82 at 148). The letter attached a chart of lead monitoring results, which had been prepared by Mr. Krough and reviewed by Ms. Bhat. (Tab 80; Tab 82 at 148). According to the letter, WASA's results for the monitoring period indicated that the 90th percentile of the testing group registered at 8 ppb for first-draw samples, a number under the LAL. (Tab 80). In the accompanying chart of results, consistent with the data that had been sent by Mr. Krough to Ms. Bhat on August 3, WASA reported 50 first-draw sampling results for the period. (*Id.*). The chart shows that four sampling results exceeded the LAL. (*Id.*).

Although the chart that accompanied the EPA letter does not provide identifying information regarding each sample,[44] in comparing the lead levels listed in the chart with the first-draw testing results reflected in the Aqueduct's and WASA's records, it is possible to infer which results among those provided by the Aqueduct to WASA are the five results that were excluded from the results WASA provided to the EPA. These five first-draw samples were among those taken in June 2001 and were among the seven samples listed as being over the LAL

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[44] Instead, the chart simply indicated the inclusion of particular sample numbers, ordered from 1-50, along with the corresponding lead sampling result for that number. (Tab 80; Tab 13 at 8). Yet, the LCR requires a water system to provide not only the lead level results for all tap samples, but also the location and selection criteria for each sample. (Tab 47 § 141.90(a)(1)(i)). The EPA raised no issues regarding the content of the report at the time.

in Ms. Turner's July 10 e-mail. All five were more than double the 15 ppb LAL. (*Compare* Tab 62 and Tab 80).[45]

In an interview, Mr. Boateng claimed that he did not see this August 6 letter until after it had been sent by Ms. Bhat to Mr. Marcotte. (Interview of Kofi Boateng, April 7, 2004). From the time of their telephone discussion on July 17 until the date of the letter, Mr. Boateng said that he had not questioned Ms. Bhat about the progress of lead monitoring. (Interview of Kofi Boateng, April 7, 2004; Tab 73 at 1073). Upon reading the letter, which indicated that the lead monitoring results for the period would not exceed the LAL, Mr. Boateng said that he did not look closely at the accompanying data and did not think about the issue further. (Interview of Kofi Boateng, April 7, 2004; Tab 73 at 1082). Nor did he question Ms. Bhat as to what facts or circumstances had changed between the time of her July 17 e-mail —which had stated that WASA's lead monitoring results were in jeopardy of exceeding the LAL — and the date of the letter. (Interview of Kofi Boateng, April 7, 2004; Tab 73 at 1073).

For his part, Mr. Marcotte noted that when he was presented with the letter, he too did not review the lead monitoring results accompanying it. (Interview of Michael Marcotte, May 25, 2004; Tab 75 at 1337). Instead, he observed that the "crisis was averted," in that the final testing results showed that WASA had not exceeded the LAL. (Interview of Michael Marcotte, May 25, 2004). Mr. Marcotte then reviewed the letter briefly and signed it. (*Id.*; Tab 75 at 1445). As with Mr. Boateng, Mr. Marcotte did not ask Ms. Bhat any questions about what had changed with regard to the lead monitoring results since the time of her July 17 e-mail. (Interview of Michael Marcotte, May 25, 2004). In hindsight, Mr. Marcotte admitted that he regretted not examining the data or asking questions about them, as he would have seen how close WASA had come to triggering an exceedance. (Tab 75 at 1445, 1567). However, he noted that because WASA's lead monitoring results had been below the LAL for years, the nature of the final results provided by Ms. Bhat did not strike him as surprising. (Interview of Michael Marcotte, May 25, 2004).

b) Rationale for the Exclusion of Certain Lead Monitoring Samples From the August 6 Letter

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[45] These five samples (with their first-draw results in parentheses) appear in WASA's and the Aqueduct's records but not in the letter to the EPA: Sample Nos. 0106122-001 (44 ppb); 0106122-007 (35 ppb); 0106140-001 (36 ppb); 0106140-005 (72 ppb) and 0106140-007 (31 ppb). (*Compare* Tab 62 and Tab 80). In its responses to Covington, the EPA counts a sixth sample that exceeded the LAL (Sample No. 00090924) as not having been reported during the monitoring period. (Tab 13 at 11). This is one of the samples for which WASA appears to have collected a first-draw sample in the summer of 2000 that it did not report to the EPA, and then later collected another first-draw sample from the same address in June 2001, which it did report to the EPA. As noted earlier, both first-draw samples for this location were over the LAL, although the result for the non-included sample (113 ppb) was many times greater than the one for the included sample (21 ppb). (Tab 65).

Without the opportunity to interview Ms. Bhat, it is difficult to understand why five lead samples that had been collected in June 2001 were not included in the final results reported to the EPA.[46] The record is confused on this point. In a number of instances in the past, both in her hearing and in records from WASA, Ms. Bhat indicated that she "invalidated" certain lead monitoring samples for the year, pursuant to criteria contained in the LCR. (Tab 84 at 214; Tab 85 at 1; Tab 86; Tab 119 at 2).

On the other hand, Covington has not located any official WASA record that provides the reasons why each of the samples were invalidated pursuant to the LCR, if in fact they were meant to be invalidated in the first place. At certain points during her depositions, Ms. Bhat testified that she could not recall which specific samples she invalidated, or the factors that she took into account in invalidating them. (Tab 81 at 102; Tab 84 at 214). At other times, Ms. Bhat has given some indications of the reasons for her actions, although she has provided inconsistent information regarding this issue.

For example, immediately upon seeing the sampling results listed in the July 10 e-mail, Ms. Bhat expressed a belief that the high lead levels may have been caused by flaws in the testing process. Yet, Ms. Bhat has provided different explanations as to why she felt this way. In her response to Ms. Turner after receiving the July 10 e-mail, Ms. Bhat claimed that "[s]ome of the volunteers [listed in the July 10 e-mail] are repeat customers on the lead copper program" such that it was "surprising to see the high lead concentration in their tap water." (Tab 68). WASA's records indicate that, of the five first-draw results that were not reported to the EPA, at least four of them were not tested in the previous monitoring period. Thus, for a number of the results included in Ms. Turner's July 10 e-mail, Ms. Bhat could not have made a comparison to prior testing results.[47]

Putting aside whether the residences associated with these samples had previously participated in lead monitoring, Ms. Bhat has in the past provided other reasons for her belief

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[46] In a memorandum prepared in December 2003 by CDM, a contractor hired to analyze WASA's LCR compliance records and data, a footnote indicates that "[s]everal irregularities were noted" in the data for the 2000-2001 monitoring period. (Tab 83 at 2). It is unclear whether this notation refers to the issue of invalidation, but it underscores that others reviewing the sampling records from this time period have had difficulties in reconciling the lead monitoring data.

[47] In his affidavit, Mr. Krough alleged that, of the lead monitoring samples that were collected in June 2001 and received by WASA in July 2001, at "least four of those samples were first time sample sites, at least one sample was a duplicate, and the remainder were from the 'list' of participants, but had not participated [in] the previous sampling period. Only samples from the 'list' were used in the report sent to Mike Marcotte and the EPA." (Tab 61 at ¶ 8). By and large, this allegation appears to be correct, based on a review of WASA's records. However, in a recent interview, Mr. Krough could not recall alleging that Ms. Bhat had omitted from the final report only those new volunteer sites from which he had gathered samples in June 2002. (Interview of Jerome Krough, June 25, 2004). He stated that she might have done so, but that he had no knowledge as to whether Ms. Bhat did so at the time he worked at WASA. (*Id.*).

that the test results should not be submitted because they were suspect. At one point in her hearing, she asserted that (i) some of the samples were taken from the basements of homes; (ii) some indicated a considerable difference between their first-draw and second-draw results, and (iii) others had no addresses listed for them. (Tab 76 at 132-33). At another point, Ms. Bhat cited, as evidence of their unreliability, the fact that the five samples were located near the site of water main breaks. (Tab 57 at 1925-26). In addition, in the summer of 2001, Ms. Bhat indicated to at least one co-worker that she felt that some of the samples collected in the monitoring period had not been properly collected. (Interview of Curtis Cochrane, March 31, 2004).[48]

In any event, Ms. Bhat and Mr. Krough both believed that it was important to confirm the accuracy of the seven samples listed in the July 10 e-mail. (Tab 76 at 133, 142; Interview of Jerome Krough, June 18, 2004).[49] As noted above, Ms. Bhat had many of the seven samples retested — all of which continued to test above the LAL. According to Ms. Bhat and Mr. Krough, each of these customers was called, in order to determine whether the customer had used improper sampling procedures, as a possible ground for invalidating the samples.[50] (Tab 76 at 131-33). According to Ms. Bhat and Mr. Krough, WASA was able to reach most, but not all, of these volunteers and to collect additional samples from some of them. (Interview of Jerome Krough, June 18, 2004).

Each of the facts described above suggests that Ms. Bhat treated the five samples as potentially having been collected improperly, implying that this may have been her rationale for withholding them from the EPA. Nonetheless, at other points in her hearing, Ms. Bhat provided an entirely different rationale for excluding the five samples from the EPA letter; this rationale had nothing to do with invalidation. Ms. Bhat said that, as the monitoring period drew to a close, she was worried about whether WASA would have at least 50 samples to report to the EPA. Ms. Bhat claimed that the five additional samples had been collected as "backup" samples, to be used only if WASA did not otherwise receive a sufficient number of valid samples from the volunteers on the original list it had provided to the EPA. (Tab 57 at 1933-34; Tab 76 at 142-

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[48] Some of these rationales would not be valid grounds for invalidating a sample under the LCR (*e.g.*, a difference between lead content in first and second-draw samples). In addition, in at least one case, Ms. Bhat's suggested reason for concern regarding the samples — that they did not have addresses listed for them — is incorrect, as each of the five samples that were excluded did have accompanying address information provided by the Aqueduct. Moreover, with respect to the likelihood of Ms. Bhat's assertion that the five samples at issue may have been affected by water main breaks in a certain area, the EPA has noted that the samples were collected from sites scattered throughout the Northwest quadrant of the District and are not located in the same street or the same neighborhood. (Tab 13 at 9).

[49] In an interview, Mr. Krough recalled that he, not Ms. Bhat, suggested that WASA follow up and test the accuracy of these samples, due to their unusually high lead results. (Interview of Jerome Krough, June 18, 2004).

[50] Mr. Krough stated in an interview and in an affidavit that he was instructed by Ms. Bhat not to reveal to these customers the level of lead contamination of these samples and to downplay any possible problems. (Tab 61 at ¶ 8; Interview of Jerome Krough, June 18, 2004).

43). The volunteers for these back-up samples, Ms. Bhat stated, had been identified for the first time in June 2001 by Mr. Krough. When WASA ultimately collected 50 valid samples without the need to rely on these additional five samples, Ms. Bhat stated, she did not need to include the back-ups in the results reported to the EPA. (Tab 57 at 1934). For his part, Mr. Krough confirmed that he had contacted some new volunteers in June 2001, in order to ensure that WASA would have at least 50 samples to provide to the EPA. (Interview of Jerome Krough, June 18, 2004; Interview of Jerome Krough, June 25, 2004). However, Mr. Krough did not recall knowing at the time that these new volunteers did not ultimately have their samples reported to the EPA because they were "back-up" samples.[51] To the contrary, he believed that if WASA collected an otherwise valid sample, that sample must be reported to the EPA, regardless of whether WASA otherwise had the required 50 samples. (Interview of Jerome Krough, June 18, 2004; Interview of Jerome Krough, June 25, 2004).

When asked why she had claimed in the past that she had "invalidated" certain samples, Ms. Bhat stated that when she had used that term, she had not intended to refer to the practice of invalidating samples under the LCR criteria. (Tab 57 at 1836-37, 1866). Instead, she said she had used the term "invalidation" generically, in order to refer to samples collected during the period that, for whatever reason, were not included in the final results provided to the EPA. (*Id.* at 1836-37). Nonetheless, Ms. Bhat seemed to contradict this explanation: even at the same hearing where she referred to the samples as back-ups, Ms. Bhat at times suggested that they were excluded from the results due to quality control considerations. (*Id.* at 1925-26, 1936-37).

Notably, in her July 17 e-mail to Mr. Boateng and Mr. Marcotte, in which she informed them that these five samples (and two others) had tested above the LAL, Ms. Bhat does not refer to the five samples as back-ups. (Tab 68). To the contrary, in that e-mail, Ms. Bhat describes the five samples as falling within a group of high test results that, unless otherwise invalidated, would put WASA over the LAL. (*Id.*). When asked about this apparent discrepancy, Ms. Bhat explained that she described these five samples as ones that might be included in the final results provided to the EPA because, at the time, she did not know whether WASA would otherwise generate 50 additional samples, or whether it would need to use the five samples as back-ups. (Tab 57 at 1861-62). She stated that she had the five samples retested by the Aqueduct, even though they were back-up samples, because she was concerned about the water quality in the particular residences. (*Id.* at 1931-32).

Despite Ms. Bhat's assertion that she always considered these five samples to be back-up samples, the record summarized above (as well as further evidence noted below) strongly suggests that Ms. Bhat meant to withhold them from the EPA because of concerns about their method of collection. By the terms of the LCR, Ms. Bhat did not have discretion to exclude samples based on her own concerns about quality control or on other bases, but rather could only

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[51] Mr. Krough thought that in one case, WASA could not make contact with one of the volunteers after receiving their high lead results, and did not submit the sample to the EPA as a result. (Interview of Jerome Krough, June 18, 2004).

invalidate samples under certain explicitly specified conditions and with express EPA approval. Covington could not confirm the exact reason why Ms. Bhat herself did not include certain samples at the end of the monitoring period. However, the shifting justifications that she provided for her actions in this regard raise concern about the basis for those actions and the intent behind them.

As previously discussed, the LCR permits sample invalidation only in certain specific circumstances (*i.e.*, due to improper laboratory analysis, for samples taken from a site that did not meet LCR site selection criteria, for samples located in a damaged container, or for samples suspected of being tampered with). As noted earlier, Covington found no contemporaneous evidence establishing the reason(s) for invalidating the five samples pursuant to these criteria. Moreover, Covington found no evidence that WASA provided written documentation to the EPA listing the samples it wished to invalidate or the facts supporting invalidation, as the LCR requires. Likewise, Covington did not come across any evidence of a written decision by the EPA permitting such invalidation, as the LCR requires.[52]

The LCR also states that all sampling results properly collected from a water system in a monitoring period must be considered in the calculation of the 90th percentile lead level. (Tab 47 § 141.86(e)). Covington found no documentary evidence confirming Ms. Bhat's claim that the EPA permitted WASA to exclude the test results for the five samples because they were "back-up" samples that did not need to be counted to reach the required number of 50 samples.

c) The Awareness *Vel Non* of Ms. Bhat's Superiors Regarding the Exclusion of Samples

WASA executives with managerial responsibility for Ms. Bhat have stated that they were unaware that she invalidated or otherwise failed to include any samples at the end of the monitoring period. For example, Mr. Boateng indicated that, although he was generally aware of the possibility that samples could be invalidated, he never heard Ms. Bhat mention the concept of invalidating samples during the end of the 2000-2001 monitoring period and he had no idea whether any samples were invalidated. (Interview of Kofi Boateng, April 7, 2004; Tab 87 at 340). (Ms. Bhat, in a hearing, confirmed that, during the time in which she was investigating the prospect of invalidation, she did not inform Mr. Boateng of her actions in that regard.) (Tab 76 at 134). Similarly, Mr. Marcotte stated that he did not discuss the issue of invalidated or excluded samples with Ms. Bhat or Mr. Boateng. (Interview of Michael Marcotte, May 25, 2004). Mr. Marcotte said that he was generally aware that Ms. Bhat had been undertaking a quality control effort regarding the samples mentioned in her July 17 e-mail. (Tab

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[52] Indeed, the LCR provides that when a water system permits samples to be collected by residents, as opposed to the water system itself, the water system may not challenge the validity of the sampling results based on alleged errors in sampling by the resident. (Tab 47 § 141.86(b)(2)). Thus, it is not clear that, to the extent that Ms. Bhat would have sought to rely on the customers' collection method of the samples for purposes of invalidation, that such a rationale would have been permissible under the LCR.

75 at 1565). However, at the time, he was unaware of the concept that there were specific LCR criteria for the invalidation of samples, and therefore he would not have known enough to ask about the issue, even if he had spoken with Ms. Bhat about the samples at that time. (*Id.* at 1565).

For her part, however, Ms. Bhat has contradicted her supervisors' claim that they were not aware of her decision to exclude certain samples from the EPA letter. Ms. Bhat has indicated that she and Mr. Boateng met for a Water Quality status meeting on August 6, 2001, the day on which the EPA letter was sent, to discuss the lead problem and what WASA might do to prepare for the ramifications of a possible exceedance of the LAL. (Tab 84 at 211-16; Tab 85 at 1; Tab 87 at 337-39; Tab 88 at 16-17). Ms. Bhat claims she told Mr. Boateng in this meeting, as she had previously, that WASA had "lucked out" by narrowly missing exceeding the LAL and that it needed to take steps to address any problems that might exist regarding lead in the water supply, such as by revisiting the level of pH added to the water. (Tab 76 at 149-50; Tab 81 at 117). An agenda for this meeting, apparently prepared by Ms. Bhat, lists one item as: "Repeat results on some high lead samples and [quality control] data received from [the Aqueduct]." Another item is: "Some sampling in the monitoring period could be invalidated." (Tab 86). At one point in her hearing, Ms. Bhat said that these notations did not mean that samples still needed to be retested (because the final results had been sent to the EPA that day), but was instead meant to prompt her to discuss with Mr. Boateng which samples had been invalidated and why. (Tab 76 at 148-49; Tab 84 at 213-14). At another point in her hearing, however, Ms. Bhat said that although she and Mr. Boateng discussed the concept of invalidation in this meeting, she told Mr. Boateng that WASA did not have to invalidate any samples. Rather, she said, WASA had simply not needed to include some samples that had exceeded the LAL, because they had been taken as back-ups and were not needed. (Tab 57 at 1963).

Ultimately, although there is a dispute about whether Ms. Bhat explicitly spoke with her managers about the exclusion of certain samples from the results sent to the EPA, Mr. Boateng and Mr. Marcotte had at least some indication that certain test results had not been submitted to the EPA. Even assuming Mr. Boateng and Mr. Marcotte were unaware of the specifics as to which samples were not included and why, they knew that Ms. Bhat had been investigating quality control concerns regarding certain samples after she received the July 10 e-mail. They also were aware that, although WASA had been in jeopardy of exceeding the LAL on July 17 if its testing results did not change, ultimately, the final testing results reported to the EPA did not exceed the LAL.[53] Although this suggests that some of the test results must have

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[53] Perhaps because the test results submitted by WASA did not exceed the LAL, neither Mr. Johnson, nor any of the Board members Covington spoke with, recall being aware of the substance of the lead monitoring results from the 2000-2001 monitoring period, or that WASA had narrowly avoided exceeding the LAL. (Interview of Jerry Johnson, May 19, 2004; Interview of Glenn Gerstell, May 20, 2004; Interview of David Bardin, May 12, 2004). The fact that WASA had conducted lead and copper testing and had not exceeded the LAL may have been raised in a meeting of the Operations Committee of the Board in late 2001 (Interview of David Bardin, May 12, 2004; Interview of James Caldwell, May 28, 2004) but, from a review of Board minutes, it does not appear that the issue was raised in meetings of the full Board at that time.

been either changed, invalidated, or withheld after July 10, Ms. Bhat's supervisors did not think to inquire about the situation.

4. Contact with the EPA Regarding Sample Exclusion

Ms. Bhat has stated that she informed Mr. Rizzo at the EPA of the fact that WASA was close to exceeding the LAL in July 2001 and that she discussed the concept of invalidation of samples with him prior to the submission of the final lead monitoring results on August 6. (Tab 81 at 95, 102; Tab 89; Interview of Curtis Cochrane, March 31, 2004). A notation in the agenda for the August 6 Water Quality status meeting likewise states that Ms. Bhat had spoken with Mr. Rizzo regarding the final lead monitoring results for the year. (Tab 86). According to Ms. Bhat, Mr. Rizzo ultimately approved of the exclusion of the five samples from the final monitoring results, because the samples were unnecessary "back-ups," and he asked her to follow-up as to what had caused the high lead results in those samples. (Tab 84 at 214; Tab 57 at 1925-26, 1941-43).

In the documents that Covington reviewed, although there was evidence that Ms. Bhat was in contact with Mr. Rizzo during June and July 2001 regarding a water quality incident that had occurred at the Smithsonian Museum complex, Covington did not uncover any documents corroborating Ms. Bhat's statement that she discussed the exclusion of samples with Mr. Rizzo in late July or early August 2001. Ms. Bhat has stated that she has no documentation of such conversations. (Tab 57 at 1933).

The EPA has told WASA and Covington that it did not approve any invalidation process during the monitoring year and cannot locate any documentation indicating that it did so. (Tab 13 at 11-12). The EPA has also said that it cannot locate any information confirming that it otherwise provided approval for the exclusion of samples during the end of the monitoring period, and that Mr. Rizzo does not recall any such communication. (Tab 90 at 1335-36; Tab 13 at 8). Indeed, the EPA has no record of any information or preliminary sampling results from WASA prior to the provision of the final sampling results for the monitoring period. (Tab 13 at 8).

If the EPA did not provide WASA with permission to exclude certain sampling results that exceeded the LAL (an issue that is in dispute, as discussed above), then WASA would have exceeded the LAL for the year. This would have triggered numerous additional obligations under the LCR that WASA would have been required to undertake, including the production of public education materials and the implementation of a lead service line replacement program. Of course, WASA did not undertake any such efforts, as the results it reported to the EPA for the period indicated no such exceedance.

On August 13, 2002, the EPA forwarded to several D.C. government officials the EPA's "Annual Compliance Report for Public Water Systems in the District of Columbia for Calendar Year 2001," which discussed the 2000-2001 monitoring period. The cover letter to that

document stated that there had been no violations of any drinking water regulations by WASA in 2001.[54]

5. Mr. Krough's Firing and the DCOIG Investigation

On September 24, 2001, slightly more than a month after WASA had completed its lead monitoring for the 2000-2001 period, WASA terminated the employment of Mr. Krough.[55] Two days later, on September 26, 2001, Mr. Krough called a DCOIG hotline and reported that he had been improperly fired by WASA for a number of reasons. (Tab 94 at 00001, 00003-04). Notes from the call indicate that Mr. Krough told a DCOIG agent that WASA "might have intentionally failed to provide results to EPA due to positive lead testing." (*Id.* at 00001). DCOIG notes indicate that Mr. Krough alleged that WASA "intentionally withheld the June 2001 lead and copper test results from the" EPA because "many of the referenced test results exceeded the EPA limit for lead." (*Id.* at 00006).[56] Aside from that allegation, according to the DCOIG agent who received the call, Mr. Krough was unable to be more specific about the facts surrounding his claim during the initial call. (Meeting with DCOIG, July 1, 2004). The agent then made plans to interview Mr. Krough in person. (*Id.*). A later note on a DCOIG case routing sheet states that the DCOIG felt that it "should look into the allegation involving the lead & copper test reports" but "not [the] firing situation [of Mr. Krough]." (Tab 94 at 00005; Meeting with DCOIG, July 1, 2004).

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[54] The statement that there had been "no violations of any drinking water regulations" does not directly go to whether the had been an exceedance of any action levels, since exceeding an action level, by itself, does not constitute a "violation" of EPA drinking water regulations so long as the required actions are taken in response to the exceedance.

[55] Ms. Bhat has stated that Mr. Krough was fired for insubordination, for failing to complete assignments given to him, and for providing misleading information to customers regarding how contaminants in D.C. drinking water could cause various health problems. (Tab 91 at 1; Tab 92 at 140). Soon after he was fired by WASA, in the fall of 2001, Mr. Krough was hired by the Aqueduct as a temporary analyst. In October 2002, after seeing Mr. Krough's name appear in an e-mail from the Aqueduct regarding bacterial sample results, Ms. Bhat complained to Mr. Boateng that she thought Mr. Krough may have been somehow responsible for the fact that unusually high sampling results were coming to WASA from the Aqueduct during that time. (Tab 92 at 164-67). (Mr. Krough, however, did not have any responsibility at the Aqueduct for the analysis of metal samples — *i.e.*, samples analyzed as part of the lead and copper monitoring process). (Tab 78 at ¶ 2; Interview of Jerome Krough, June 18, 2004). In a memorandum written to Mr. Boateng in October 2002, Ms. Bhat complained that Mr. Boateng had not objected to Mr. Krough's hiring by the Aqueduct when consulted on the issue prior to the hiring, and stated that Mr. Boateng generally had not provided her with guidance or support as her manager. (Tab 91 at 2-3). Mr. Boateng has stated, in response, that he did not feel that Mr. Krough was a poor employee while at WASA, so he did not see a problem with his working at the Aqueduct. (Tab 93 at 265-68). At the same time, Mr. Boateng said that he supported Ms. Bhat's decision to fire Mr. Krough in the fall of 2001. (*Id.*)

[56] In an affidavit, Mr. Krough has stated that he did not share any such concerns with WASA management at the time these events occurred. (Tab 61 at ¶ 22).

In response to Mr. Krough's call, the DCOIG opened an investigation into whether WASA had properly reported lead monitoring samples in the 2000-2001 monitoring year. As part of its Investigative Plan for the case, the DCOIG planned to consider whether there were any violations of local or federal laws regarding false statements or the appearance of impropriety in governmental decision making. (Tab 94 at 00006).

The DCOIG sought the cooperation of the EPA OIG as part of its investigation. On January 18, 2002, representatives from the two offices met. (Tab 95). The EPA OIG assigned an agent to assist the DCOIG agent on the case, in order to facilitate information flow from the EPA and provide a perspective on the meaning of relevant EPA regulations. (Meeting with DCOIG, July 1, 2004). The EPA OIG subsequently sought and received WASA's reported sampling results for the monitoring period from the EPA's Region III office. (*Id.*).

According to a January 2002 e-mail from Ms. Turner to Mr. Stowe, which was subsequently forwarded to Mr. Marcotte, Mr. Rizzo was the EPA employee who provided the EPA OIG with the copies of the sampling results WASA had submitted to the EPA. (Tab 96). Ms. Turner's e-mail suggests that Mr. Rizzo was aware of the investigation and that he asked that the Aqueduct send him copies of the monitoring results that it planned to send to the DCOIG. (*Id.*). Mr. Rizzo also was interviewed by the EPA OIG investigator in January 2002 as part of the investigation, and provided general background regarding lead sampling procedures. (Meeting with DCOIG, July 1, 2004; Tab 304).

As part of its investigation, the DCOIG interviewed Mr. Krough, who expanded upon his allegations. Notes taken in a November 13, 2001 interview of Mr. Krough state that "more than 50 test[s]" of samples were conducted in the 2000-2001 monitoring period, but some of the samples collected "weren't submitted to [the] EPA b/c they were above the EPA limit for lead." (Tab 97 at 00008-09). Mr. Krough said that all "July 2001 test results should have been provided to EPA" and that he was "certain" that some of the results were not submitted, because the original reports of those results were on his desk at the time he was terminated from WASA. (Tab 66 at 00018; Tab 97 at 00008). Notes from the interview suggest that Mr. Krough believed that Ms. Bhat "probably just excluded the [samples] that failed." (Tab 97 at 00009). Mr. Krough also provided the agent with documents regarding lead monitoring. Significantly, as part of the documents he provided, Mr. Krough appears to have submitted the actual Aqueduct testing reports for the same five samples, collected in June 2001, that Ms. Bhat excluded from the final results WASA provided to the EPA in August 2001. (Meeting with DCOIG, July 1, 2004; Tab 98). Mr. Krough identified these five samples as the samples that he believed had not been submitted to the EPA during the monitoring year. (Meeting with DCOIG, July 1, 2004).

When asked why Ms. Bhat would have improperly excluded samples, Mr. Krough suggested that she did so because she "simply did not want to look bad" and because, if WASA were to exceed the LAL for the year, that would create "more work" for Ms. Bhat, in that WASA would then be required to test a larger number of samples as part of its routine lead monitoring. (Tab 66 at 00018; Tab 97 at 00009).

Thus, notes of DCOIG investigators regarding conversations with Mr. Krough and the documents Mr. Krough provided to the EPA leave little room for doubt that his allegation was that Ms. Bhat had withheld sampling information from the EPA for the 2000-

2001 monitoring period. Consistent with this position is an affidavit that Mr. Krough executed in February 2004, stating that he notified the DCOIG that the results "reported to the EPA for the 2000-2001 sampling period were invalid." (Tab 61 at ¶ 21). However, in his recent interview with Covington, it was Mr. Krough's recollection that he had not complained to the DCOIG about the 2000-2001 monitoring period, but instead had asserted that Ms. Bhat was improperly withholding lead monitoring results from the EPA for the *2001-2002 monitoring period.* (Interview of Jerome Krough, June 18, 2004). Mr. Krough claimed in the interview that, as sampling data was coming in at the beginning of the 2001-2002 monitoring period, Ms. Bhat indicated to him that she wanted to exclude some of the results that had tested over the LAL on the grounds that they had been collected erroneously, despite the fact that no error had been made in the collection of those samples. (*Id.*). Because of this conversation, and because of his doubts about Ms. Bhat's veracity in general, Mr. Krough said that he suspected that Ms. Bhat was planning to withhold samples improperly from the EPA in the 2001-2002 monitoring year, which he said prompted his complaint to the DCOIG. (*Id.*). In his interview with Covington, Mr. Krough stated that he did not believe WASA or Ms. Bhat had done anything improper regarding the reporting of samples in the 2000-2001 monitoring period. (*Id.*). He stated that he was involved in the reporting process in 2000-2001 and believed that, if WASA did not report the results of certain samples, it did so for a valid reason. (*Id.*).

When asked if he was aware that the DCOIG had conducted more than a year-long investigation into the 2000-2001 monitoring period (not the 2001-2002 monitoring period), based on its understanding of his allegations, Mr. Krough said that the DCOIG agent he spoke with must have been confused about the nature of his allegations. (*Id.*). (The DCOIG agent who conducted the investigation, by contrast, said that Mr. Krough was clear that his complaint focused on the mis-reporting of samples collected in June 2001, as part of the 2000-2001 monitoring period). (Meeting with DCOIG, July 1, 2004). As to the affidavit he signed that likewise referred to the 2000-2001 monitoring period, Mr. Krough said that the 2000-2001 reference in the affidavit was a mistake, which he failed to catch before signing the affidavit. (Interview of Jerome Krough, June 25, 2004).

This inconsistency between Mr. Krough's present and past allegations further complicates the question of whether it was proper for Ms. Bhat to withhold sampling results for the 2000-2001 period. In any event, based on its understanding of Mr. Krough's allegations at the time and the documents Mr. Krough provided, the DCOIG proceeded on to investigate WASA's handling of the 2000-2001 sampling results.

In so doing, the DCOIG requested and obtained from the Aqueduct all laboratory results from samples that the Aqueduct had received from WASA, collected as part of the LCR lead monitoring program for the 2000-2001 monitoring year. (Tab 62 at 00096). The testing results provided to the DCOIG by the Aqueduct included 118 samples in all, 18 of which indicated lead concentrations above the LAL.[57] (*Id.*). When comparing the samples to other WASA records, it is clear that this 118-sample number includes both first and second-draw

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[57] These testing results are the "first set" of testing results referenced in Section A.2.

samples taken from the same address. In a few instances, it also includes either a second-draw result for an address, where there is not a corresponding first-draw result, or vice versa. (*Compare* Tab 62, Tab 63, and Tab 64). The DCOIG and EPA OIG did not interview any Aqueduct employees as part of the investigation to further explain the nature of these sampling results. (Meeting with DCOIG, July 1, 2004).

After receiving these results, the DCOIG met with the EPA OIG on June 19, 2002, in an effort to determine whether there was a correlation between the results that WASA received from the Aqueduct for the 2000-2001 monitoring year and the results WASA reported to the EPA in that year. (Tab 99 at 00043). The purpose of this comparison was to determine "whether WASA was providing EPA with all of the reports received from WASA." (*Id.*). Notes from that meeting indicate that the EPA had reported to the EPA OIG that it had received 78 monitoring results from WASA for the monitoring period (of which six were over the LAL). (*Id.*). It is not clear how EPA arrived at this number of samples.[58] Now that they had received sets of results from the Aqueduct and the EPA, the DCOIG and EPA OIG agents compared the two sets of results. (Meeting with DCOIG, July 1, 2004). They determined that all 78 of the EPA's samples were included in the 118-sample list that had been provided by the Aqueduct. (*Id.*).

The DCOIG next asked to interview Ms. Bhat as part of the investigation. WASA executives encouraged Ms. Bhat to participate fully in the inquiry. On July 9, 2002, she met with an agent from the DCOIG for two hours. (Tab 100 at 298; Tab 101). Although she was aware that the DCOIG inquiry had been prompted by a complaint regarding the reporting of lead and copper results, Ms. Bhat appears not to have known that it was initiated by allegations of Mr. Krough. (Tab 100 at 303).

After providing the agent with some background on the LCR and other information regarding lead monitoring, Ms. Bhat explained how WASA obtained volunteers for the lead monitoring program. She stated that homes with the maximum probability of lead contaminants were selected, and that the homes must be single-family homes that were built at a time prior to when the District stopped connecting lead service lines to new homes. (Tab 102 at 00041). Ms. Bhat explained that once a potential volunteer provided information suggesting that his or her home met these criteria, the EPA approved the volunteer for the program. (*Id.*). Ms. Bhat added that, on occasion, WASA would receive requests from other customers who wished to have their water tested but who were not listed as volunteers or were not eligible for the lead and copper monitoring program; she said that WASA would collect water samples for these customers, but would not report those results as part of the LCR monitoring results it provided to the EPA. (*Id.*). According to the DCOIG agent, Ms. Bhat did not mention the concept of collecting certain samples as "back-ups" to be used only if the necessary 50 samples were not collected from the volunteer group. (Meeting with DCOIG, July 1, 2004).

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[58] For example, this 78-sample number could not be a compilation of the first and second-draw results provided to the EPA in August 2001, as that number would equal 100, and would have included seven results that were over the LAL, not six. (Tab 80).

Ms. Bhat went on to state that if a participant's sample exceeded the LAL, WASA would provide that information to the participant and would take a second sample for testing. (Tab 102 at 00041).[59] Following up on the meeting a few days later, Ms. Bhat provided the agent with some WASA lead-related materials, including the final results that WASA reported to the EPA for the 2000-2001 monitoring period. (Tab 103 at 00025). She also informed the agent that all participants listed in those final results were notified by letter of their testing results. (*Id.*).

On August 12, 2002, at the request of the DCOIG agent, Ms. Bhat faxed him sample copies of letters sent to those who participated in the lead and copper monitoring program in 2000-2001. (Tab 104). In an accompanying cover sheet, Ms. Bhat indicated that, although all participants in the monitoring program were orally informed of their test results, WASA did not always send these persons notice letters "due to a lack of support staff." (*Id.*). In his report, the agent notes that this response contradicted what Ms. Bhat had said in their earlier discussion, when she claimed that all participants in the program had been notified by letter. (Tab 105 at 00021).

At the close of its investigation, on December 31, 2002, the DCOIG compiled a "Recommendation to Close Case Administratively." The report concluded that there was no evidence indicating that Ms. Bhat violated any criminal or administrative statutes. (Tab 66 at 00017-00021). The report stated that the Aqueduct had records of 118 test results for the monitoring period (18 of which exceeded the LAL) and that WASA submitted 78 of those 118 tests to EPA (of which six exceeded the LAL). (*Id.*). The report stated that WASA was required to submit only 50 samples to the EPA during the testing year and that, instead, it had submitted 78. (*Id.*). The report stated that Ms. Bhat had told DCOIG investigators that the other samples (*i.e.*, the difference between the 118- and 78-sample numbers) either were from homes that were not participants in the lead monitoring program or were from homes that did not meet the requirements for the monitoring program. (*Id.*). Thus, DCOIG concluded that it was "plausible that [the Aqueduct] would generate more tests than WASA was required to submit to the EPA." (*Id.*). DCOIG therefore recommended that the case be closed. (*Id.*). The DCOIG agent who wrote the report indicated to Covington that he was also influenced by the fact that the impetus for Mr. Krough's complaint appeared to be displeasure over having being fired and a dislike of Ms. Bhat, such that it made the agent call into question the accuracy of Mr. Krough's allegations. (Meeting with DCOIG, July 1, 2004).

Three days later, on January 2, 2003, the DCOIG investigation into Mr. Krough's allegation was officially concluded. (Tab 94 at 00001). Although the DCOIG agent discussed his general conclusions with his EPA OIG counterpart, the EPA OIG did not review the DCOIG's final report. (Meeting with DCOIG, July 1, 2004).

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[59] In this interview, Ms. Bhat stated that, at the time, she was not certain what the consequences of exceeding the LAL were, given that WASA had never done so during her tenure. (Tab 102 at 00041). This conflicts with the fact that, at the end of the prior monitoring year in July 2001, Ms. Bhat had described to her supervisors some of the consequences of exceeding the LAL and claims to have discussed the topic with them at length.

As noted above, it appears that the 118 samples provided by the Aqueduct to WASA, noted in the DCOIG's report, include both first- and second-draw samples, collected as part of WASA's lead monitoring program. When those samples are compared to other WASA records, and when locations for which the Aqueduct reported no first-draw sample are eliminated, it is evident that WASA received first-draw samples from 55 different locations from the Aqueduct as part of the 2000-2001 lead monitoring program. Of those 55 samples, WASA later excluded five from the final report it sent to the EPA. However, the DCOIG was not familiar with the concept of first-draw or second-draw samples during the course of its investigation. (Meeting with DCOIG, July 1, 2004). Although the DCOIG had sought the assistance of the EPA OIG in part to provide a perspective on the nature of EPA regulations that would apply to the investigation, the EPA OIG agent also did not make this distinction or failed to communicate its significance to the DCOIG agent. (*Id.*).

As a result, the agents did not realize that the 118 samples received from the Aqueduct were not all first-draw samples, such that WASA had actually received from the Aqueduct only five more first-draw samples than it was required to report under the LCR. (*Id.*). Instead, when the agents saw the total number of samples reported to the Aqueduct (118), and the total number of samples that the EPA stated it had received (78)[60] they concluded that Mr. Krough's allegations were not credible, as they believed that WASA had tested nearly double the number of samples it had been required to test for the year and had reported well over the required number of samples to the EPA. (*Id.*). Thus, they felt that the heart of Mr. Krough's allegation — that WASA had neglected to provide a few samples to the EPA that, if provided, would have had a material impact as to whether WASA exceeded the LAL for the year — did not square with the facts they had learned. (*Id.*). This misunderstanding also made them question another premise of Mr. Krough's complaint — that Ms. Bhat was reluctant to test more than 50 samples a year and wanted to avoid the increased monitoring responsibilities that would follow an exceedance. (*Id.*). Thinking that Ms. Bhat had actually collected more than twice the number of samples required by regulation, the agents did not think that Mr. Krough's allegation made sense. (*Id.*). The agents did not follow up with Mr. Krough, the EPA, or the Aqueduct to discuss these apparent discrepancies. (*Id.*).

The DCOIG agent in charge of the investigation said that, had he understood the concept of first-draw samples, and had he known that, of the samples reported by the Aqueduct, only a few more than 50 were actually first-draw samples, he might have considered further the possibility that the omission of certain samples by Ms. Bhat had a meaningful effect on the final results reported to the EPA. (*Id.*).

The DCOIG and EPA OIG were provided by WASA with the final lead monitoring results that it had submitted to the EPA, such that they would have been able to compare those numbers (50 first-draw samples provided, four of which were over the LAL) with

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[60] Again, it is unclear as to where the 78-sample number that the EPA provided to the DCOIG originated. The DCOIG's report makes it appear as if that 78-sample number relates to first-draw sample results, but Covington has not found any supporting documentation reflecting this number of reported samples.

the 78-sample figure (with six samples over the LAL) they had received from the EPA. However, the agencies did not further question why 28 additional samples that were listed as having been reported to the EPA were not included in the final sampling numbers that WASA submitted for the year. (*Id.*). The agencies also made no attempt to verify Ms. Bhat's assertion that any samples not included in WASA's report to the EPA were either from homes that were not participants in the lead monitoring program or from homes that did not meet the requirements for the program. (*Id.*). This was despite the fact, as noted above, the agents had been provided by Mr. Krough with the paperwork for the same five first-draw samples that Ms. Bhat ultimately excluded from the final list of results she provided to the EPA.[61] Instead, knowing that WASA was required to report at least 50 samples for the monitoring year, and that it had appeared to have reported 78 samples, well over that number, the agents did not look further at the nature of the samples involved. (*Id.*).

Notably, had the DCOIG or the EPA OIG reached conclusions different from the conclusions reached in the December 2002 DCOIG report, their investigation could have focused attention on WASA's lead monitoring activities and on the lead content of the District's water supply at least a full year before the *Washington Post* broke the story in January 2004.[62] Indeed, WASA's management was never informed of the findings and conclusions of the investigation. (Interview of Michael Marcotte, May 25, 2004). Although the EPA OIG was involved in the investigation, the EPA has stated that its Region III office was never provided with a report or any other result of the investigation. (Tab 13 at 12).

Although they were aware that an investigation had been going forward on the sampling issue, neither WASA executives or EPA officials contacted DCOIG to inquire about the final results of the investigation. (Meeting with DCOIG, July 1, 2004). Mr. Marcotte recalled that, when he became aware in 2002 that the DCOIG was investigating the handling of lead monitoring samples from the 2000-2001 monitoring period, he remembered that WASA had just barely avoided triggering the LAL for that year. This led him to consider briefly the possibility that Ms. Bhat's selection of samples to be included in the total reported to the EPA might have affected whether WASA did or did not exceed the LAL. (Interview of Michael Marcotte, May 25, 2004). He stated that he discussed the issue with Ms. Bhat in July 2002, and that she told him that she had invalidated some samples during the end of the 2000-2001 monitoring period. (Tab 90 at 1361; Tab 75 at 1333).

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[61] In addition, the DCOIG's report does not mention that Ms. Bhat had provided its agent with contradictory information during the investigatory process, such as when she first claimed that written notification had been provided to all participants in the 2000-2001 monitoring program, but later said that was not the case. The DCOIG agent explained that he did not believe at the time that this discrepancy was significant or cast doubt on Ms. Bhat's general credibility. (Meeting with DCOIG, July 1, 2004).

[62] Had the allegations been deemed substantiated, DCOIG officials confirmed that a copy of a final report could have been provided not only to WASA, but also to the D.C. Council or the Mayor's office. (Meeting with DCOIG, July 1, 2004).

As noted above, Mr. Marcotte was aware of the DCOIG investigation as early as January 2002. (Tab 96). Mr. Marcotte stated in an interview, however, that, because WASA exceeded the LAL in 2002 soon after he became aware of the DCOIG investigation, and because DCOIG did not report any findings to WASA, he did not take action to review Ms. Bhat's handling of the 2000-2001 lead monitoring samples. (Interview of Michael Marcotte, May 25, 2004).

After the close of the investigation, the DCOIG received only one telephone call regarding its conclusions. That call came from the federal agency investigating Ms. Bhat's claim of wrongful termination from WASA in 2003. (*Id.*). The DCOIG agent recalled that this phone call lasted only two minutes and that the person with whom he spoke simply asked whether there was any merit to the claim that Ms. Bhat had failed to provide samples to the EPA in the 2000-2001 monitoring period. The DCOIG agent responded that there was no merit to the claim, and the call ended. (*Id.*).

B. 2001-2002 Lead Monitoring Period

1. July/August 2001 Lead Monitoring Results

Because WASA had not exceeded the LAL in the prior testing year, when the 2001-2002 monitoring period began, WASA continued to test under a reduced monitoring program. As such, during this period, which ran from July 1, 2001 to June 30, 2002, WASA was required to take at least 50 samples in July, August, September, and the following June. According to WASA's records, for the 2001-2002 monitoring period, WASA took slightly more than half of the reported samples in July and August 2001 and the remainder in June 2002. (Tab 106 at 6-8).

Indications that WASA might exceed the LAL for the 2001-2002 monitoring period became apparent early in the lead sampling and testing process. WASA collected samples from two locations on July 17, 2001 and samples from 25 additional locations from August 1 through August 16, 2001, which it included in the final results that it provided to the EPA at the end of the monitoring year.[63] (Tab 106). By August 24, 2001, Ms. Turner had provided Ms. Bhat with indication via e-mail that the first-draw samples for eight of these locations had tested over the LAL — all of which tested at levels over 40 ppb (with one testing at 109 ppb). (*Compare* Tab 106 and Tab 108 at ¶¶ 3-4). The fact that 8 sample locations initially appeared to have lead concentrations above the LAL in August 2001 provided an early indication that a LAL exceedance for the 2001-2002 monitoring period was likely. Ms. Bhat appears to

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[63] In the results provided by Ms. Turner to Ms. Bhat in the fall of 2001, a number of the properties for which sampling results tested over the LAL were not included in the final 53 sampling results provided to the EPA in August 2002. As is discussed later in this Section, Ms. Bhat may have invalidated these additional samples (Tab 107 at 15), although that is unclear from the evidentiary record. For purposes of discussion as to when Ms. Bhat may have been on notice that an LAL exceedance was likely, this subsection will reference only those first-draw sampling results that were ultimately provided to the EPA.

have had all of these samples retested at some point prior to the end of October 2001; in each case, the samples again tested above the LAL. (Tab 108 at ¶¶ 4-6). By the end of August, WASA had collected samples from an additional nine locations that it included in the final results it provided to the EPA. (Tab 106).

Indeed, it appears that Ms. Bhat informed Mr. Rizzo of the EPA in August 2001 that an exceedance was likely. In a January 2002 interview with an EPA OIG investigator, Mr. Rizzo is noted as stating that in August 2001, Ms. Bhat told him that WASA may exceed the LAL for the 2001-2002 monitoring year. (Tab 304).

On October 12, 2001, Ms. Turner e-mailed Ms. Bhat with additional results of samples that had tested over the LAL. (Tab 108 at ¶ 6). In that e-mail, Ms. Turner included information indicating that the first-draw samples for 12 additional locations had tested over the LAL. (*Id.*). A number of these results were above 40 ppb; two were over 100 ppb (testing at 158 ppb and 186 ppb, respectively). All told, of the 36 first-draw samples that were collected during July and August 2001, which were ultimately included in the final results that WASA provided to the EPA at the end of the monitoring year, 20 had exceeded the LAL. Thus, by the middle of October, Ms. Bhat should have been aware that WASA would dramatically exceed the LAL for the monitoring year. Indeed, when one combines the fact that such a large percentage of these results had tested over the LAL with the fact that a large number of the results received in June 2001 (as part of the prior monitoring period) had tested over the LAL, it should have been clear to Ms. Bhat by mid-Fall 2001 that the lead concentration in WASA's sampling pool had taken a decided shift.

2. Communication Regarding Lead Monitoring Results in Fall 2001 and Spring 2002

a) Disputed Conversations between Ms. Bhat and Mr. Boateng

The extent to which Ms. Bhat communicated the results of WASA's lead monitoring to others at WASA during the fall of 2001 and into the spring of 2002 remains subject to dispute. According to her trial testimony, Ms. Bhat did not recall forwarding Ms. Turner's September and October e-mails regarding elevated lead levels to her supervisor, Mr. Boateng, or others at WASA. (Tab 109 at 507-10).[64] Ms. Bhat did testify, however, that she generally informed Mr. Boateng that WASA's sampling results might exceed the LAL for the monitoring period shortly after she received the first of Ms. Turner's e-mails in early August. (Tab 109 at 513). Ms. Bhat explained that she saw no reason to forward specific results to Mr. Boateng until she had investigated them further. (*Id.*). Moreover, Ms. Bhat stated that as additional results came in throughout the fall of 2001, she subsequently kept Mr. Boateng informed in general terms of the nature of those results as she received them. (Tab 110 at 117). Ms. Bhat acknowledged at her deposition that she did not have any documentation of these

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[64] In its litigation with Ms. Bhat, WASA has claimed that its computer technicians could prove that Ms. Bhat never forwarded any of these e-mails to anyone at WASA. (Tab 107).

conversations with Mr. Boateng. (*Id.*).

In an interview, Mr. Boateng denied that Ms. Bhat informed him of any sampling results in the fall of 2001. (Interview of Kofi Boateng, April 7, 2004). Rather, Mr. Boateng stated that he did not first learn that WASA's lead monitoring results would exceed the LAL until Ms. Bhat provided that information in a July 2002 meeting. (*Id.*). Mr. Marcotte likewise indicated that he first learned of the prospect for an exceedance in July 2002. (Interview of Michael Marcotte, May 25, 2004).

Covington could not reconcile these competing accounts as to when or whether Ms. Bhat informed her supervisors of high lead monitoring results during the fall of 2001. Covington found no documentary evidence indicating that Mr. Boateng or Mr. Marcotte were so informed. At the same time, despite being aware that WASA nearly exceeded the LAL at the end of the 2000-2001 monitoring period, Covington found no evidence that Ms. Bhat's supervisors asked any questions of her as to the progress of the sampling program during this time.

b) Ms. Bhat's Claims of Intimidation

Ms. Bhat has claimed that Mr. Boateng and Mr. Marcotte intimidated her into keeping quiet about the likelihood of an LAL exceedance in the 2001-2002 monitoring period. In a statement to the Department of Labor, Ms. Bhat alleged that she believed she would suffer retaliation if she reported high lead results to the EPA. (Tab 111 at 2).

According to Ms. Bhat, one such incident of intimidation occurred during her July 26, 2001 meeting with Mr. Boateng, Mr. Krough and Mr. Marcotte, which involved discussion of the high lead levels that had been found in water fountains at WASA's Blue Plains facility. (Tab 111 at 2). The DCOIG had been investigating this issue and, prior to this meeting, had contacted Mr. Krough with a request for some information regarding tests conducted on WASA's drinking fountains. Mr. Krough had provided the DCOIG with this information without first alerting Mr. Boateng or Mr. Marcotte. These documents were later referenced by the DCOIG in a meeting with Mr. Marcotte, who felt "blindsided" by the fact that the DCOIG had received WASA documents that he was not aware of. (Interview of Michael Marcotte, May 25, 2004). Mr. Marcotte then called the internal July 26 meeting. (*Id.*).

Ms. Bhat has claimed that at this July 26 meeting, Mr. Marcotte's tone was "angry," and that he suggested that there would be negative consequences for any WASA employee who gave the DCOIG information in the future. (Tab 111 at 2). Although the DCOIG investigation was not directly related to the tap monitoring program, Ms. Bhat stated: "I understood Marcotte in our July 26, 2001 meeting to mean that I would suffer retaliation if I reported WASA's lead exceedance to the EPA in the future." (*Id.*). Mr. Marcotte disputed that characterization, stating that at the meeting, he simply told the attendees that it was permissible to provide data to governmental entities, but that he should have access to that data first, so that he would be aware of its existence. (Interview of Michael Marcotte, May 25, 2004). Mr. Krough corroborated Mr. Marcotte's account of the meeting, stating that he did not believe that the tone and substance of Mr. Marcotte's comments were unreasonable or could be interpreted as

meant to intimidate anyone. (Interview of Jerome Krough, June 18, 2004).

In addition, as part of interactions that she was having with Mr. Boateng in 2001 regarding Mr. Boateng's displeasure with her job performance, Ms. Bhat has stated that she felt pressure to be less than forthcoming to the EPA as to the status of lead monitoring results. On December 7, 2001, in a performance evaluation, Mr. Boateng rated Ms. Bhat's performance as unsatisfactory. (Tab 111 at 2). Ms. Bhat met with Mr. Boateng on December 26, 2001, to discuss her evaluation. (*Id.* at 3). At this meeting, Ms Bhat claimed that Mr. Boateng "admitted that his judgment about [Ms. Bhat's ability to communicate] was based on an occasion in which [Ms. Bhat] disclosed the possibility of an SDWA violation" in an unrelated matter. (*Id.*). Later, on April 29, 2002, Mr. Boateng instituted a Performance Improvement Plan for Ms. Bhat. (Tab 112). According to Ms. Bhat's statement, the Performance Improvement Plan was an "attempt to coerce me into keeping my mouth shut about WASA's lead levels." (Tab 111 at 4).

Covington could neither substantiate nor refute Ms. Bhat's allegations of intimidation and retaliation. In an earlier management review of WASA conducted in 2000, the DCOIG did report that there were general fears of management retaliation among WASA employees. The DCOIG reported that WASA "employees were reluctant to discuss concerns for fear of retaliation and also expressed general concerns that any efforts to bring such issues to the management's attention would be futile . . . ." (Tab 113 at 1). In that report, DCOIG "could not identify any instance in which managers appreciated candor or negative information or were open to discussion or criticism . . . ." (*Id.*). Current and former WASA employees who addressed the issue during interviews with Covington took a different view, however, expressing no reluctance when asked whether they felt comfortable bringing difficult issues to the attention of WASA management.

In its investigation, apart from Ms. Bhat's statements, Covington encountered no other specific evidence that Mr. Boateng, Mr. Marcotte, or any other WASA employee attempted to intimidate Ms. Bhat. Indeed, in other instances, Ms. Bhat indicated that she continued to keep open lines of communication with the EPA in future monitoring years, notwithstanding her claims of intimidation.

c) Winter/Spring 2002 Meetings between Mr. Boateng and Ms. Bhat

Ms. Bhat also asserted that she made efforts to inform Mr. Boateng of the results of the lead monitoring testing during the winter and spring of 2002. In trial testimony, Ms. Bhat stated that she provided Mr. Boateng with information regarding lead monitoring and the criteria for invalidating samples on a number of occasions. (Tab 109 at 197-99, 201-02; 209-10; 565-70). Ms. Bhat acknowledged in her testimony, however, that she did not directly provide Mr. Boateng with the lead monitoring results that Ms. Turner had previously sent her in August and September 2001. (*Id.* at 569-70).

Ms. Bhat testified that she met with Mr. Boateng on February 22, 2002. (Tab 109 at 568). Ms. Bhat claims that, at that meeting, she informed Mr. Boateng that it was clear that lead concentrations would exceed the LAL for the monitoring year, but that she did not provide him with specific data (*i.e.*, reports sent from Ms. Turner). (*Id.* at 570). Ms. Bhat testified that

Mr. Boateng did not want to see raw data at the time. (*Id.*). In addition, Ms. Bhat testified that, on March 11, 2002, she provided Mr. Boateng with a list of homes that had already exceeded the LAL; she could not produce this list in her trial. (*Id.* at 199, 201-02, 572). For his part, Mr. Boateng denied having received such a list. (*Id.* at 1064).

Ms. Bhat also claimed that, on March 12, 2002, she began drafting an e-mail to Mr. Boateng regarding the status of the August and September 2001 lead testing.[65] Covington received a hard copy of this e-mail as part of materials it reviewed from Ms. Bhat's Department of Labor litigation. (Tab 116). An expert hired by WASA testified during Ms. Bhat's trial that this e-mail was a version of an e-mail that Ms. Bhat had addressed to WASA employee Jackie Oliver on the same date. (Tab 109 at 928-32; Tab 116). Covington also reviewed a hard copy of an apparent follow-up e-mail from Ms. Bhat to Mr. Boateng, likewise dated March 12, 2002, entitled "2001-2002 Lead [R]esults," in which Ms. Bhat wrote to Mr. Boateng that she had not yet heard from him regarding these subject results. (Tab 117). These e-mails do not appear in the Lotus Notes electronic files Covington received from WASA.[66] Mr. Boateng testified that he did not recall receiving an e-mail regarding lead monitoring results from Ms. Bhat at this time. (Tab 109 at 1069).

d) The Contested March 21, 2002 E-mail

Ms. Bhat and WASA have also provided conflicting accounts regarding whether Ms. Bhat forwarded an e-mail to Mr. Boateng on March 21, 2002, which purportedly provided notice that WASA would likely exceed the LAL for the monitoring year. (Tab 107 at 3). As previously noted, on October 12, 2001, Ms. Turner e-mailed Ms. Bhat with a large number of sampling results that had tested or retested above the LAL, sufficient to put Ms. Bhat on notice that WASA would almost certainly exceed the LAL for the monitoring year. (Tab 108 at ¶ 6).

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[65] From March 18 to 19, Mr. Boateng and Ms. Bhat exchanged e-mails about lead testing with regard to WASA's drinking fountains, but these e-mails did not address tap monitoring for lead under the LCR for the 2001-2002 monitoring period. (Tab 109 at 203; 1124; Tab 114; Tab 115 at 411-12). On one occasion in that e-mail exchange, Ms. Bhat mistakenly understood a request for information from Mr. Boateng to refer to the 2001-2002 lead monitoring period, when in fact he was referring to the testing of drinking fountains. In her reply to his e-mail, she made reference to WASA's regular tap monitoring for lead and copper, as she wrote, "Are you referring to the Pb-Cu regulatory tests & retests performed at customer sites during this period?" (Tab 114). Covington saw no evidence that this reference led to any substantive discussion of those lead and copper results at the time.

[66] Notably, on March 19, 2002, according to her affidavit, Ms. Turner sent Ms. Bhat copies of the lead monitoring results she had sent previously in October 2001. (Tab 108 at ¶ 7). In her deposition, Ms. Bhat stated that she had requested these additional copies because she had misplaced the originals. (Tab 110 at 267-68). It is unclear how, if Ms. Bhat misplaced the results, she could have sent an e-mail to Mr. Boateng on March 12, 2002, informing him of the lead testing results.

In her deposition, as noted above, Ms. Bhat claimed to have informed Mr. Boateng of these general results orally in October 2001. (Tab 110 at 159-61). However, Ms. Bhat testified that she did not actually forward these testing results to Mr. Boateng until March 21, 2002, when she purportedly sent him a copy of lead monitoring results for August and September 2001. Ms. Bhat did not explain what prompted her to send these results to Mr. Boateng on March 21, five months after she received them from the Aqueduct. For its part, WASA has contended that Ms. Bhat never sent such an e-mail to Mr. Boateng on this date. Instead, it asserts that Ms. Bhat later altered the text of an e-mail message that she sent to Mr. Rizzo at the EPA on March 21 regarding lead monitoring results, in order to make it appear as if she had also sent a similar e-mail to Mr. Boateng at nearly the same time.

Based on the evidence, there is reason to doubt the authenticity of the e-mail that Ms. Bhat claims to have sent to Mr. Boateng on March 21. First, although the record of the Department of Labor hearing includes a paper copy of the e-mail, the electronic version of Ms. Bhat's e-mail from the time period, which was provided to Covington by WASA, does not contain any evidence of an e-mail from Ms. Bhat to Mr. Boateng on this date.

Second, a forensic computer expert hired by WASA stated in an affidavit that Ms. Bhat did not send an e-mail to Mr. Boateng on March 21, 2002. (Tab 107 at 16; Tab 118 at 4). The expert based his finding on the restoration of e-mail files from archived back-up tapes to WASA's servers at its Blue Plains location. (Tab 118 at 1).

Third, versions of the e-mails that Ms. Bhat claims to have sent on March 21, regarding the progress of the 2001-2002 lead monitoring, provide further evidence that the e-mail she claims to have sent Mr. Boateng on that date may not be authentic. Covington received three versions of e-mails purporting to be sent by Ms. Bhat on March 21 regarding lead monitoring results. In the first e-mail, sent by Ms. Bhat to Mr. Rizzo on March 21, 2002 at 12:34 p.m. ("the first e-mail"), which appears both in electronic and hardcopy form in the documents Covington reviewed, Ms. Bhat writes in part:

> Mr. Rizzo - Per your request attached for your review are the lead and copper result [sic] that were taken for the monitoring period July 2001 to June 2002 . . . . Approximately 39 samples are analyzed to-date and 11 more need to be analyzed to complete required 50 samples. However I am very much concerned that with the high lead results [17] so far it may not me [sic] possible to meet the below .015 mg/l of lead action level . . . ." [Tab 119 at 1].

Covington reviewed a second e-mail forwarded by Ms. Bhat[67] on December 4, 2002 at 4:57 p.m. (Tab 119 at 2). An earlier part of the e-mail string includes an e-mail from

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[67] In the line where a recipient of this forwarded e-mail would be listed, there is no e-mail address provided. Instead, the space is blank.

Ms. Bhat to Mr. Boateng noted as being sent on March 21, 2002 at 12:34 p.m. ("the second e-mail") in which Ms. Bhat writes in part:

> Kofi -- Attached for your review are the lead and copper result [sic] that were taken for the monitoring period July 2001 to June 2002. The total number of samples to be analyzed will be complete in June 2002. 37 samples are analyzed todate [sic] and 13+ need to be analyzed to complete required 50+ samples. I will take some extra samples from call in volunteers who qualify for the program when the monitoring starts again in June. I have highlighted the high lead results in the attachments also refer to *Note. We may be in the same situation as in the July 2000-2001 monitoring period [Email dated 7-17-2001]. I will investigate to see if any samples can be invalidated based on improper sample collection, QC data, retests etc. as was done last year. We may luck out. However the samples with high lead concentration are greater this monitoring period than last monitoring period and it is improbable that they may be invalidated. We will be able to resume sampling testing again in June 2002 . . . . (Tab 119 at 2).

During her trial, Ms. Bhat was confronted with the inconsistency between the e-mail to Mr. Rizzo (in which she references 39 samples having been collected as of that date) and the e-mail to Mr. Boateng (in which she references 37 samples). (Tab 109 at 618-35). WASA contended that Ms. Bhat had not drafted this second e-mail on March 21, but instead had created it at a later date, and that the listing of an different sample total was evidence that Ms. Bhat did not write the e-mail on the same date as the first e-mail to Mr. Rizzo. (*Id.*). This second e-mail does not appear in electronic form in the documents Covington reviewed. In addition, the caption of this second e-mail contains a different font and layout than the font of the other WASA e-mails that Covington reviewed. (Tab 119 at 2).

In a third e-mail, forwarded from Ms. Bhat to Mr. Marcotte on January 15, 2003, an earlier part of the e-mail string includes an e-mail from Ms. Bhat to Mr. Boateng, also noted as being sent on March 21, 2002 at 12:34 ("the third e-mail"). In that e-mail from Ms. Bhat, she writes in part:

> Kofi:
>
> Attached for your review are the lead and copper results that were taken for the monitoring period July 2001 to June 2002. The total number of samples to be analyzed will be complete in June 2002. Thirty nine [39] samples are analyzed to-date and 11 need to be analyzed to complete required 50 samples. I will take some extra samples from

> call in volunteers who qualify for the program when the monitoring starts again in June 2002. However, at this stage, I am very much concerned that with the high lead results [17samples] so far it may not be possible to meet the 0.015 mg/l lead action level .... (Tab 119 at 3).

This third e-mail also does not appear in electronic form in the documents Covington reviewed. As is evident from the text shown above, the third e-mail differs from the second e-mail in some respects, most notably in the number of samples that it lists as having been collected as of its date and the number of samples that remained to be gathered.[68]

At trial, Ms. Bhat was asked to explain why she had copies of three versions of e-mails, sent at the same time on the same date to Mr. Rizzo and Mr. Boateng, which contained different factual content. In response to questioning by the judge, Ms. Bhat had difficulty explaining the inconsistencies between the three versions of the March 21 e-mail. For example, when confronted with the inconsistencies between the content of the second and third e-mails, both addressed to Mr. Boateng, Ms. Bhat testified that the second e-mail (which claimed that 37 samples had thus far been analyzed) was simply an earlier draft, sent to her own home computer, of the third e-mail. The third e-mail, explained Ms. Bhat, was the one that she actually sent to Mr. Boateng on March 21. (Tab 109 at 740-42; Tab 119 at 3). Ms. Bhat indicated that that she had simply made a mistake in the second, draft e-mail when she listed the number of samples that had been collected to date. Yet Ms. Bhat had difficulty explaining her rationale for the creation of these two different e-mails to Mr. Boateng. In particular, Ms. Bhat had trouble in explaining why she had sent a draft e-mail to her own computer (the second e-mail) within the same minute that she sent a similar — but slightly different — e-mail to Mr. Boateng (the third e-mail). (Tab 109 at 740-42).

An additional reason to doubt the authenticity of the March 21 e-mail is the fact that, in later correspondence to Mr. Boateng regarding her performance evaluation, Ms. Bhat made no mention of having sent him an e-mail on March 21. On December 14, 2002, Ms. Bhat wrote a letter to Mr. Boateng requesting that he review her performance evaluation, to which she appended a table entitled "Performance Review Supporting Documentation." (Tab 120 at 5). This table, which listed dates on which Ms. Bhat had communicated with Mr. Boateng regarding significant events, included no entry for March 21, 2002.[69] (Tab 120 at 5). The absence of a

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[68] Mr. Marcotte testified to being confused when Ms. Bhat forwarded him this e-mail on January 15, 2003, in support of her appeal of her recent performance rating. (Tab 109 at 1388). According to Mr. Marcotte's testimony, Mr. Boateng had previously said that he did not recall Ms. Bhat ever telling him of the possibility of a lead exceedance prior to the summer of 2002, while this March 21, 2002 e-mail seemed to indicate that she had. (*Id.*; Tab 119 at 3). Mr. Marcotte testified that after receiving the e-mail, he asked Mr. Boateng about it, and Mr. Boateng repeated that he had no memory of receiving it. (Tab 109 at 1388).

[69] Ms. Bhat also made no mention in this table of a March 12, 2002 e-mail that she claims to have sent to Mr. Boateng, informing him of the nature of the lead results that she had received (continued...)

March 21, 2002 entry is significant, both because the majority of entries in the table concerned lead monitoring and because of the significance of the purported e-mail itself. (*Id.*). This table, and the other evidence discussed above, provides reason to believe that the March 21 e-mail may not be authentic.

e) Other Communications in Late 2001 and Early 2002 Regarding 2001-2002 Lead Monitoring Results

Apart from the disputed question of whether Ms. Bhat informed Mr. Boateng of these results, however, there is no evidence that anyone outside of the Water Services Division was made aware of those results prior to the summer of 2002. This information clearly would have been pertinent to WASA senior management, WASA's Engineering & Technical Services Division, WASA's Public Relations office and WASA's Board, among others. These entities all would be significantly involved in preparing for the consequences of an LAL exceedance, including the preparation of public education materials and of plans for a lead service line replacement program. WASA employees interviewed from each of those groups indicated that they did not first learn that lead concentrations would exceed the LAL until the summer of 2002. (Interview of Jerry Johnson, May 19, 2004; Interview of Michael Marcotte, May 25, 2004; Interview of Elizabeth Lawson, April 22, 2004; Interview of Leonard Benson, April 1, 2004; Interview of Roger Gans, April 2, 2004; Interview of Jodye Russell, April 15, 2004; Interview of Curtis Cochrane, March 31, 2004; Interview of Glenn Gerstell, May 20, 2004).

In her trial testimony, Ms. Bhat claimed she did not inform Ms. Lawson — who in the spring of 2002 was producing the WASA Water Quality Report for 2001 (which would include reference to the results of the 2000-2001 lead monitoring period) — of these high lead monitoring results because Mr. Rizzo had told her that WASA need not include such information in the report. (Tab 109 at 593-94). Nor did Ms. Bhat inform Mr. Johnson of the high lead results, according to her trial testimony; at that time, Mr. Johnson was preparing his water quality report for the same period to the Board of Directors on June 17, 2002. (*Id.* at 594-95).

Although Ms. Bhat does not appear to have informed many, if any, WASA personnel about the likely exceedance before the summer of 2002, she did provide advance notice to the EPA. As noted above, in her March 21 e-mail to Mr. Rizzo, the authenticity of which is not disputed by the EPA, Ms. Bhat advised that WASA was likely to exceed the LAL for the monitoring period. The EPA has confirmed that Mr. Rizzo received this e-mail, and indicated, in its responses to Covington's written questions, that this e-mail was the first preliminary notice that it had that WASA would exceed the LAL for the monitoring year. (Tab 13 at 13). However, as noted above, Mr. Rizzo apparently told an EPA OIG investigator in January 2002 that Ms. Bhat had made him aware of the possibility that WASA would exceed the LAL for the monitoring year as far back as August 2001. (Tab 304).

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as of that date. It is also not clear why Ms. Bhat would not have included the March 12 e-mail in the table, were that e-mail authentic.

In any event, in response to the March 21 e-mail informing him of the likely exceedance, which, if it occurred, would require significant public education and lead service line replacement efforts in the future, as well as a change to the way that WASA collected lead monitoring samples, Mr. Rizzo wrote: "Thanks for sending the data to me. I won't get a chance to look at [it] until next week." (Tab 121). In its written responses to Covington, the EPA has stated that Mr. Rizzo later "directed Ms. Bhat to the LCR with respect to the follow-up actions that WASA would need to take if it exceeded the LAL when sampling was completed." (Tab 13 at 13). However, as noted above, by this time, there would have been little doubt that WASA would indeed exceed the LAL for the monitoring period. Despite this, neither the EPA nor WASA appears to have greatly stressed the need to plan in advance for the consequences of such an exceedance.

3. The Communication and Reporting of 2001-2002 Lead Monitoring Results in Summer 2002

In June 2002, WASA completed its lead sampling for the 2001-2002 sampling period. According to WASA's final results reported to the EPA, the remainder of its 2001-2002 sampling occurred in the last week of June 2002 — at the very tail end of the monitoring period. (Tab 106 at 6-7). From June 25 to 28, according to the report, WASA collected 17 samples. (*Id.*). Six of these samples had lead concentrations exceeding the LAL. (*Id.*). Ms. Bhat received notice from Ms. Turner on July 11, 2002 that these additional six first-draw samples had tested over the LAL. (Tab 122; Tab 110 at 304-05).

At some point near the completion of the 2001-2002 lead monitoring period, which ended on June 30, Ms. Bhat was involved in communications with the EPA and others at WASA regarding the nature of period's final results. Although conflicting accounts make it difficult to determine precisely when these final results were relayed to others at WASA, it is clear that, by mid-to-late July 2002, both Mr. Boateng and WASA's Engineering & Technical Services Division were aware that the results showed lead concentrations that exceeded the LAL.

Ms. Bhat and Mr. Boateng again provided differing accounts of when Ms. Bhat provided Mr. Boateng with information regarding the likelihood of an exceedance during the summer of 2002. Ms. Bhat claimed to have sent an e-mail to Mr. Boateng on June 24 discussing lead monitoring for the 2001-2002 period. (Tab 109 at 260). Covington did not locate such an e-mail in the documents provided by WASA or other sources. Ms. Bhat further testified that on the same day, June 24, she indicated that lead concentrations would exceed the LAL at a seminar involving her fellow management at WASA. (Tab 109 at 261-62).

On July 8, one day before she met with the DCOIG as part of its investigation of the prior year's monitoring events, Ms. Bhat met with Mr. Boateng. (Tab 109 at 281). According to Ms. Bhat's trial testimony, she provided Mr. Boateng with the lead monitoring results from the fall of 2001 at this time. (*Id.*). Ms. Bhat testified in her trial that, at this meeting, Mr. Boateng told her not to pass on any unfinished results from the 2001-2002

monitoring period to the DCOIG. (*Id.*). The next day, according to Ms. Bhat, she met with the DCOIG agent to discuss the 2000-2001 monitoring period, but she did not provide him with any results from the 2001-2002 monitoring period. (*Id.* at 281).[70]

On July 17, Ms. Bhat copied Mr. Boateng on an e-mail to Mr. Boateng's assistant, wherein she requested additional information to finalize her yearly budget request. (Tab 107 at 20-21; Tab 109 at 1189; Tab 115 at 398-406). A chart attached to the e-mail noted that lead concentrations for the current monitoring period might exceed the LAL. (*Id.*). In the second column of the tenth row of the chart, Ms. Bhat wrote:

> The corrosion control program is implemented for the DC drinking water and the pH is maintained so that there is no leaching of lead. DC is in compliance with the Lead Copper rule however in year 2001- 2002 there are large number of homes exceeding the lead action level and DC may not meet the lead action level for 2002. Also there is increasing public request to replace lead service lines ... There are a large number of homes with elevated levels and these home[s] also have lead service lines. (Tab 123 at 4).

This reference is the first undisputed instance in which Ms. Bhat raised the issue of a possible exceedance to Mr. Boateng, albeit in a form that might have been overlooked.

According to Mr. Boateng's interview with Covington, he first learned of a possible lead exceedance at a senior staff meeting on July 19, 2002.[71] At the meeting, which dealt with a number of issues, Mr. Boateng recalled that Ms. Bhat made mention that WASA "might" exceed the LAL for the year. (Interview of Kofi Boateng, April 7, 2004). Mr. Boateng admitted that he did not really focus on Ms. Bhat's statement at the time, as it was one of many things mentioned at the meeting, despite the fact that he understood the implications of an LAL exceedance. (Interview of Kofi Boateng, April 7, 2004; Tab 115 at 385-86). According to Ms. Bhat, her description of the exceedance at this meeting was provided in a discussion, during which she explained the follow-up steps that WASA would have to implement due to the exceedance, pursuant to the LCR. (Tab 109 at 273). Minutes from the meeting confirm that Ms. Bhat discussed the high lead levels and the possibility of exceeding the LAL. (Tab 124).

According to her trial testimony, Ms. Bhat met with Mr. Boateng on July 26, at which time she told him that she had completed the lead monitoring for the period and would

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[70] The DCOIG agent who met with Ms. Bhat indicated that he did not request monitoring results from the 2001-2002 monitoring period at that meeting. (Meeting with DCOIG, July 1, 2004).

[71] When asked why he believed that Ms. Bhat would have kept the information about the exceedance to herself for most of the 2001-2002 monitoring period, Mr. Boateng claimed that Ms. Bhat had a penchant for wanting to be an "island" unto herself and for hoarding information. (Interview of Kofi Boateng, April 7, 2004).

soon circulate the required EPA letter to be signed by Mr. Marcotte. According to Ms. Bhat, Mr. Boateng gave no response. (Tab 109 at 285-87). However, during his trial testimony, Mr. Boateng claimed that the two did not discuss the 2001-2002 lead monitoring results at this meeting. (*Id.* at 1068-69).

On July 30, 2002, Ms. Bhat e-mailed Mr. Rizzo of the EPA with information regarding preliminary sampling results for the entire monitoring period, copying Mr. Boateng. (Tab 125; Tab 13 at 14; Interview of Kofi Boateng, April 7, 2004).[72] In her e-mail to Mr. Rizzo, Ms. Bhat noted that the partial lead monitoring results she sent to Mr. Rizzo in March of that year indicated that WASA would likely exceed the LAL, and explained that she had recently received the remainder of the year's results. (Tab 125). Ms. Bhat stated that, although the results were not yet official, it did not appear that any were invalid and, therefore, WASA would exceed the LAL for the year. Ms. Bhat asked Mr. Rizzo about the prospect of increased monitoring and about the prospect of the implementation of a public education campaign. (*Id.*). According to her trial testimony, Ms. Bhat followed up this e-mail with a call to Mr. Rizzo on July 31 to discuss several issues, including the high lead monitoring results. Ms. Bhat did not address the substance of that conversation during her testimony. (Tab 109 at 293). For its part, the EPA stated that, in the call, Mr. Rizzo again directed Ms. Bhat to the LCR for follow-up actions that would be needed as a result of the exceedance. (Tab 13 at 13).

On August 2, Ms. Bhat forwarded her July 30 e-mail to Mr. Rizzo to Mr. Marcotte. (Tab 109 at 305-07; Tab 127). The e-mail contained no accompanying message from Ms. Bhat.[73] Mr. Boateng confirmed that he did not open this e-mail until August 12. (Interview of Kofi Boateng, April 7, 2004). In an earlier deposition, Mr. Boateng could not explain why it took him two weeks to open this e-mail. (Tab 115 at 478). However, when asked this question by Covington, Mr. Boateng responded that he was very busy at the time and that, because he receives a large amount of e-mail each day, he tends to focus only on those that catch his attention. (Interview of Kofi Boateng, April 7, 2004). Mr. Boateng stated that his day-to-day focus at the time was centered on customer complaints and that, since lead "was not an issue" at the time he received this e-mail, the e-mail escaped his attention. (*Id.*). Mr. Boateng made this statement despite acknowledging that he had heard a brief discussion on the exceedance by Ms. Bhat a few weeks earlier, at the July 19 staff meeting. (*Id.*).

When Mr. Boateng actually opened the e-mail on August 12 and read it, he was "shocked" and forwarded it right away to Mr. Marcotte, as he knew the e-mail's contents were a "major" issue. (*Id.*). At trial, Mr. Boateng testified to reacting to the e-mail with frustration because he felt that Ms. Bhat should have contacted him much earlier regarding the issue, so that

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[72] In a letter to WASA dated February 11, 2004, the EPA noted that these results were due on July 10, 2002. (Tab 126).

[73] At the end of a separate e-mail regarding lead service line replacement issues that she sent to Mr. Boateng (with a copy to Mr. Marcotte) on the same day, August 2, Ms. Bhat notes at the end of the message: "Also I have sent you an e-mail indicating that we will not meet the lead copper action level this monitoring period." (Tab 128 at 2).

WASA could have developed a plan to mitigate the problem. (Tab 109 at 1054-56).[74] Mr. Marcotte recalled receiving a phone call from Mr. Boateng informing him about the lead exceedance. (*Id.* at 1362). Mr. Marcotte testified that his heart skipped "a couple of beats" when he heard the news, and that he wanted to know immediately if the results were final, what the time frame for reporting the exceedance was, and when WASA could verify the results. (*Id.* at 1363). Mr. Marcotte testified that he thought that the timing of Ms. Bhat's notification was extremely late. (*Id.* at 1443).

On August 19, according to her trial testimony, Ms. Bhat e-mailed Mr. Boateng to remind him of the August 2 e-mail. (Tab 109 at 311-14). At trial, Ms. Bhat claimed Mr. Boateng's response was to "keep quiet regarding the lead issue." (*Id.* at 312). On August 20, the next day, WASA received the final official testing results from the Aqueduct. (Tab 129). Thereafter, on August 23, Ms. Bhat e-mailed Mr. Rizzo in order to schedule a meeting to discuss a response to the exceedance. (Tab 130).

On August 26, 2002, WASA sent official results for the 2001-2002 monitoring period to EPA. (Tab 106). These results indicated that, for the monitoring period, WASA collected a total of 53 samples. The 90th percentile was 75 ppb for the first draw, and was 80 ppb for the second draw. (*Id.*). Test results attached to the letter indicated that for the first draw, 26 of 53 samples tested above the LAL. On August 30, according to Mr. Boateng's notes, he scheduled a meeting with Mr. Marcotte and Ms. Bhat, in order to discuss the exceedance and whether anything could have been done earlier to prevent it or to anticipate its occurrence. (Tab 131; Interview of Kofi Boateng, April 7, 2004).

This meeting took place on September 3. (Tab 109 at 325; Tab 111 at 6; Tab 131 at 156-57). According to Mr. Boateng, Mr. Marcotte was upset at the meeting because Ms. Bhat treated the results of the lead monitoring as an "academic" issue and delayed in alerting him about it, despite the fact that an LAL exceedance would mean extensive practical work for WASA. (Interview of Kofi Boateng, April 7, 2004). Mr. Marcotte recalled that his primary concern at the meeting was to find out "how we got to this point." (Tab 132 at 6). According to Mr. Marcotte, Ms. Bhat claimed that she had not informed Mr. Boateng and him earlier of the possibility of the exceedance because the data had just been compiled. (Tab 109 at 1364). Mr. Boateng also recalled that, during this meeting, Ms. Bhat may have admitted that she should have acted faster in notifying others at WASA about incoming results. (Interview of Kofi Boateng, April 7, 2004). Mr. Marcotte stated that Ms. Bhat said nothing at the meeting of having informed Mr. Boateng in March 2002 of the possibility of such an exceedance. (Tab 109 at 1365).

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[74] Mr. Cochrane also told Covington that at some point in August, Ms. Bhat came to his office and told him that lead concentrations in the District had exceeded the LAL. (Interview of Curtis Cochrane, March 31, 2004). According to Mr. Cochrane, this conversation was the first time he learned that lead concentrations would exceed the LAL for the monitoring period. (*Id.*). Mr. Cochrane said that he immediately informed his supervisors, Mr. Benson and Mr. Marcotte, of the lead monitoring results. (*Id.*).

Mr. Marcotte said that he then asked Ms. Bhat whether, in situations where WASA was in jeopardy of exceeding the LAL at the end of a monitoring period, the LCR would allow WASA to collect additional samples to add to the sampling pool. (Tab 133 at 2-3; Interview of Michael Marcotte, May 25, 2004). In making this suggestion, Mr. Marcotte explained that he was simply asking whether it would be possible to expand the sampling pool in order to get a larger sample of volunteers, and said that he was not suggesting that WASA manipulate the sampling process for the sole purpose of avoiding an LAL exceedance. (Tab 109 at 1381-82). For her part, Ms. Bhat stated that, at the meeting, Mr. Marcotte was angry and asked: "In hindsight, could we have done anything differently to avoid the lead exceedance ... [f]or example, could we have worked smarter like the Washington Aqueduct in the case of total coliform monitoring, to dilute the results?" (Tab 111 at 6-7). Ms. Bhat stated that she understood Mr. Marcotte to be suggesting that WASA increase its lead monitoring sampling numbers to dilute the final results and therefore to manipulate lead monitoring data. (*Id.*). Ms. Bhat replied that the issue was an academic one for this monitoring period, as the period had ended and no additional samples could be taken. (Tab 109 at 325; Interview of Michael Marcotte, May 25, 2004).

Regardless of whether Ms. Bhat's supervisors were informed of the likelihood of an exceedance during the monitoring year, there is no dispute that WASA's General Manager and members of its Board were not made aware of the issue until the fall of 2002. In an interview with Covington, Mr. Johnson stated that he first learned of the lead exceedance at some point during the Fall. (Interview of Jerry Johnson, May 19, 2004). Members of WASA's Board were similarly made aware of the fact of the exceedance in the September or October 2002, well after the monitoring period's end, when WASA began publishing public education materials in response to the exceedance. (Tab 134; Interview of Glenn Gerstell, May 20, 2004). When the Board received this notice, WASA's staff believed that the exceedance may have been simply a statistical anomaly, one explained by the fact that only a small number of samples were collected in the monitoring period, and was not emblematic of a larger water quality problem. (Tab 134; Interview of Michael Marcotte, June 25, 2004). As a result, according to Board members interviewed by Covington, the exceedance was not presented to them at the time as a major problem. (Tab 134; Interview of Glenn Gerstell, May 20, 2004; Interview of James Caldwell, May 28, 2004). The Board was advised that WASA would fully comply with EPA requirements resulting from the exceedance and that DoH was also aware of and involved with the issue. On the other hand, Board member David Bardin noted that no one on the Board asked for more information regarding the 2001-2002 lead monitoring process after they learned of the exceedance, such as data on the individual sample results or information about the health effects of lead. (Interview of David Bardin, May 12, 2004). Some Board members attributed the lack of follow-up questions to the fact that the matter was not presented by WASA management as one warranting further inquiry.

4. Sample Invalidation

As discussed in Section V.A.5, the DCOIG conducted an investigation into claims by Mr. Krough that WASA had improperly invalidated lead sampling results in the past. While the DCOIG investigation predominantly involved the 2000-2001 lead monitoring period, because Mr. Krough worked for Ms. Bhat during portions of both the 2000-2001 and 2001-2002

lead monitoring periods, his allegations, if true, could bear on the validity of lead monitoring in the 2001-2002 monitoring period as well.

In his interview with Covington, Mr. Krough alleged that Ms. Bhat indicated to him that she planned to improperly exclude sample results in the 2001-2002 period. (Interview of Jerome Krough, June 18, 2004.). According to Mr. Krough, he and Ms. Bhat discussed the sampling results that WASA was receiving as they came in during the fall of 2001. (*Id.*). Mr. Krough claimed that Ms. Bhat was only concerned with samples with high lead monitoring results. (*Id.*). He said that she told him that a number of high lead samples could be discarded under the pretext that they were improperly sampled. (*Id.*).

The documentary record is not clear as to whether Ms. Bhat invalidated any samples with high lead concentrations in the 2001-2002 lead monitoring period, and if so, how. Given that a large number of samples ultimately exceeded the LAL for the 2001-2002 monitoring period, the possibility that samples from the monitoring period were improperly excluded or invalidated, while troubling, would have fewer practical consequences than any improper exclusion of samples that may have occurred during the 2000-2001 monitoring period.

There is some evidence to suggest that Ms. Bhat may have invalidated samples in the 2001-2002 monitoring period. According to the Aqueduct's records, it tested 76 first-draw samples from residential properties during the LCR-approved months of the monitoring year. (Tab 135). Of these 76 first-draw results, 53 appear in WASA's final report to the EPA on August 26, 2002. (*Compare* Tab 106 and Tab 135). According to the same records, 10 of the additional first-draw samples appear to be retests of samples from locations that are included in the final EPA results; in no case of an apparent retest does a testing result exceeding the LAL appear to have been replaced with a result that did not exceed the LAL. (*Compare* Tab 106 and Tab 135). Finally, 13 of the 76 first-draw results do not appear in WASA's final report to the EPA. (*Id.*). (Of these 13 results, seven are above the LAL, and six are below it.) (*Id.*). WASA has alleged that Ms. Bhat invalidated a number of samples during the monitoring period, which, if true, may be these samples that are otherwise unaccounted for in the final EPA results. (Tab 107 at 15).

As discussed in Section IV.C.1, the LCR permits the invalidation of samples, but establishes detailed criteria for invalidation. Under the LCR, WASA would have had to report to the EPA in writing all requests for invalidations, including the inclusion of supporting documentation for each sample to be invalidated. (Tab 47 § 141.86(f)(3)). A search of materials that WASA, the Aqueduct, and other agencies provided to Covington revealed no documentation of the invalidation of these samples, or any other samples taken during the monitoring period, as would be required by the LCR.

C. Public Education Efforts Relating to 2001-2002 LCR Monitoring Results

When lead concentrations exceeded the LAL after the 2001-2002 monitoring period, various regulations required WASA to inform its customers about the health effects of lead, about potential lead sources, and about which steps to take to reduce exposure to lead. As was noted in Section IV.C.2, the LCR contains special public education requirements. The

purpose of these requirements is both to inform the public when lead levels are high and to advise the public on how to reduce lead exposure. EPA regulations further require water systems to prepare annual water quality reports (known as consumer confidence reports) and to provide timely public notification to alert consumers when a water system fails to comply with certain drinking water regulations.

WASA was already in the process of preparing public education materials before the EPA officially deemed that it had exceeded the LAL on October 1, 2002. As previously noted in Section V.B, on August 26, 2002, Mr. Marcotte sent a letter to Mr. Rizzo of the EPA, in which he provided the results for the 2001-2002 monitoring period, which revealed that the 90th percentile lead level exceeded the LAL.

Soon thereafter, representatives from WASA and the EPA convened two meetings in early September 2002, at which they discussed the consequences of the exceedance and WASA's resulting responsibilities. The first meeting, held on September 4, 2002, included Mr. Boateng, Ms. Bhat and Mr. Obasi of WASA, with Mr. Rizzo and James Jerpe, a Senior Environmental Employee of the National Association for Hispanic Elderly who was working under a grant provided by the EPA, attending for the EPA. (Tab 129; Tab 136 at 4; Tab 137 at 213-17; Tab 138 at 323, 332; Interview of Kofi Boateng, April 7, 2004). The second meeting occurred slightly more than a week later, on September 13, 2002, and included participants from the first meeting, along with Ms. Turner and Lloyd Stowe of the Aqueduct. (Tab 129 at 1; Tab 136 at 4). At these meetings, the representatives discussed the various steps WASA would need to take to comply with the LCR, including those involving public education, as well as potential causes for the elevated levels of lead that had been found. (Tab 13 at 14). Mr. Rizzo highlighted the public education requirements in these meetings and told WASA it would have to create and distribute public education materials to various organizations throughout the city, such as schools. (Tab 129 at 2; Interview of Silas Obasi, April 20, 2004). Notes from these meetings indicate that "[t]he idea was not to reach all residents as in the case of Consumer Confidence Report [CCR] but reach maximum targeted population that is the groups most vulnerable to high lead concentrations such as children, pregnant women and infants." (Tab 129 at 2 (brackets in original)).

Even before WASA began to generate its public education materials, at least one news outlet made public to District residents the fact that WASA had exceeded the LAL. An October 18, 2002 article in the *City Paper* reported the exceedance and stated that WASA "is also required to begin a campaign to educate the public on [the 2001-2002 monitoring period] lead results." (Tab 139). The article noted that the average lead concentration in the homes sampled was significantly above the LAL and highlighted that children and pregnant women were among the groups most at risk from elevated levels of lead in the drinking water. (*Id.*). The article also quoted Mr. Rizzo as noting that the EPA "didn't expect that kind of result" because, even when WASA had exceeded the LAL in years past, "they didn't exceed it at [the levels recorded in the 2001-2002 monitoring period]." (*Id.*).

Several weeks thereafter — in late October and early November — WASA began distributing various public education materials in response to the exceedance, including a brochure entitled *Living Lead-Free in D.C.*, public service announcements, and later, a Water

Quality Report. Following is a description of these public education materials, along with a discussion of how the materials were created.

1. Billing Notices

A water system must begin delivering public education materials within sixty days of exceeding the LAL. (Tab 47 § 141.85(c)(2)).[75] The LCR mandates that water systems must insert notices in each customer's water utility bill containing certain language and must include an alert in large print on the water bill itself.[76] (Tab 47 § 141.85(c)(2)(i)). If a water system does not have a billing scheduled within sixty days from the LAL exceedance, or if major changes to the billing system would be necessary to insert the information, then the water system may use a separate mailing to deliver the information, so long as the LCR information and alert are delivered to each customer within the sixty days. (Tab 47 § 141.85(c)(2)(i)).

Because WASA did not adopt monthly billing until the spring of 2003, (Tab 142), it did not insert such language in each customer's water utility bill within the sixty-day timeframe.[77] In an October 10, 2002 e-mail, Ms. Lawson explained to Mr. Rizzo that, "[i]nstead of a bill stuffer, since [WASA] would not get all customers, we are doing a first class, mass mailing. We are doing all the other necessary items as listed in the regulations, as well." (Tab 144 at WAS 0002985). The mass mailing was to include the distribution of an educational brochure that came to be titled *Living Lead-Free in D.C.*[78]

Since WASA decided to use a separate mailing, it had to comply with LCR requirements that the mailing include both the alert and the mandatory language provided in the LCR. (Tab 47 § 141.85(c)(2)(i)). The *Living Lead-Free in D.C.* brochure did not contain the

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[75] WASA received results of the lead monitoring period from the Aqueduct on August 20, 2002. Pursuant to the LCR, WASA was therefore required to deliver public education materials by October 20, 2002. However, the EPA required WASA to conduct public education by October 31, 2002. (Tab 49 at ¶ 44). Internal WASA correspondence reveals that Mr. Rizzo extended the deadline to October 31, 2002. (Certain e-mails circulated between WASA employees also refer to this deadline as October 30, 2002.) (Tab 140; Tab 141).

[76] The alert must read, "SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION." (Tab 47 § 141.85(c)(2)(i)).

[77] WASA did not mention the LAL exceedance in its Winter 2002 *What's On Tap* pamphlet, which accompanied its quarterly billing. (Tab 143). The record does not clearly indicate why WASA decided not to provide such information as a supplement to the Fall 2002 distribution of *Living Lead-Free in D.C.* The first *What's On Tap* to mention an LAL exceedance was the August 2003 *What's On Tap* pamphlet, which referred to the results from the monitoring period in the first half of 2003, discussed separately in Section V.E.

[78] The content of that brochure is significant, as it would be the major piece of public education distributed by WASA after the exceedance.

alert, nor did the brochure exactly track the language provided by the LCR, as discussed further below.

2. Public Education Brochure — *Living Lead-Free in D.C.*

WASA first distributed the *Living Lead-Free in D.C.* brochure on October 30, 2002, to the editorial departments of *The Washington Post* and *The Washington Times*, and then separately mailed the brochure to non-subscribers of the papers, public schools, libraries, and medical facilities. (Tab 145). WASA intended this brochure to satisfy LCR public education requirements and, as a result, largely included the LCR-specified language in the brochure. However, in part because of the nature of the language provided by the LCR and in part because of particular drafting decisions made by WASA, *Living Lead-Free in D.C.* did not clearly alert consumers that the recent spike in lead levels was a new reason for consumers to seriously consider the brochure's educational content, nor did it convey that approximately half of the homes tested in the monitoring period had lead level results above 15 ppb.

a) Preparation of the Brochure

Ms. Bhat prepared the first draft of the brochure. According to Mr. Boateng, on September 13, 2002, the date of the second preparatory meeting with the EPA, he instructed Ms. Bhat to locate templates from which WASA could develop its public education materials. (Interview of Kofi Boateng, April 7, 2004). In preparing initial drafts of the brochure, Ms. Bhat largely copied language provided in the LCR. (Tab 146 at WAS 2955-68; Tab 147 at WAS 2973-84; Interview of Elizabeth Lawson, April 22, 2004).

In September and early October 2001, Ms. Bhat was in consistent contact with Mr. Rizzo of the EPA regarding the brochure's content. In a September 18, 2002 e-mail, Ms. Bhat forwarded to Mr. Rizzo a draft of language to appear in WASA's brochure. (Tab 146). In that e-mail, Ms. Bhat indicated that she wanted to provide Mr. Rizzo with an early copy of the draft brochure, and she requested his input regarding its content. (*Id.*). Both Ms. Bhat and the EPA have indicated that Mr. Rizzo approved these initial drafts of the brochure. (Tab 13 at 22; Tab 136 at 5; Tab 148 at 342, 348-50). Furthermore, in a September 27, 2002 e-mail, Ms. Bhat advised Mr. Cochrane and other WASA employees that she asked Mr. Rizzo "about changing the EPA suggested language. Mr. Rizzo informed me that as in case of CCR and public notification the mandatory language has to be included. A utility may add additional information if it prefers." (Tab 149 at 0340). On September 30, 2002, Ms. Bhat asked Mr. Rizzo to provide feedback on a draft of the brochure. (Tab 147). As of October 7, 2002, Ms. Bhat was still primarily involved in the drafting process, as she instructed Mr. Obasi to revise the draft according to corrections that had been provided by Mr. Rizzo. (Tab 150).

At some point, Ms. Lawson took over primary responsibility for the brochure and worked with Ms. Bernhardt and Mr. Ricks of Baker Killam, who were responsible for designing the brochure's layout and incorporating edits into the final draft. (Interview of Elizabeth Lawson, April 22, 2004). WASA officials explained that the transition of the editing of the brochure from Ms. Bhat to Ms. Lawson was a natural one, as the Public Affairs office played a key role in any WASA publication that was to be distributed on a large scale, such as water

quality reports. (Interview of Michael Marcotte, May 25, 2004; Interview of Elizabeth Lawson, April 22, 2004).

In addition, at some point in the drafting process, Mr. Johnson requested that the DoH partner with WASA in creating this brochure. He made this request in a telephone call to Theodore Gordon, DoH Deputy Director for Environmental Health, and Mr. Gordon agreed that DoH would provide assistance. (Interview of Elizabeth Lawson, April 22, 2004). According to Ms. Lawson, the DoH's involvement with the brochure did not actually occur until late October 2002, when WASA was finalizing the brochure to meet the publication deadline. (Interview of Elizabeth Lawson, April 22, 2004). Ms. Lawson's recollection is supported by an October 22, 2002 e-mail from Robert Vowels, a DoH Environmental Health Administration physician, to several DoH staff members, indicating that DoH had "received an urgent, time-sensitive request from Mr. Johnson of DCWASA to partner with DCWASA in its lead reduction program. This program is an action that was triggered by EPA because lead levels had risen and were actionable this summer." (Tab 151). Mr. Vowels stated that Mr. Gordon and Mr. Johnson had spoken and that Mr. Gordon had directed DoH staff to assist WASA in creating the brochure. (Tab 151; Tab 152).

The next day, Dr. Lynette Stokes, DoH's Chief of the Bureau of Hazardous Material and Toxic Substances, e-mailed Mr. Gordon that the DoH had delivered "information regarding [DoH's] educational pamphlet for childhood lead exposure risk factors" and a "'Flyer' describing all the events for 'Lead Awareness Week scheduled during October 20-October 25'" to Ms. Lawson. (Tab 153 at 1). The DoH also provided WASA with other general lead information and logos such as the District flag, which were incorporated into the *Living Lead-Free in D.C.* brochure. In an October 24, 2002 e-mail, Mr. Johnson thanked Mr. Gordon and the DoH for its "extremely rapid response" and indicated that "[the DoH] staff has been great to work with and their assistance is greatly appreciated," calling them "true professionals." (Tab 154 at 1).[79]

On October 25, 2002, as the brochure approached its final form, similar in content to the version that was ultimately published, Ms. Lawson e-mailed Mr. Rizzo a version of it, copying Mr. Marcotte, Mr. Boateng and Mr. Brown, and Ms. Bhat. (Tab 144). In the materials that Covington reviewed, it found no evidence that Mr. Rizzo or the EPA objected to the content of the brochure prior to its publication.[80] Indeed, in a January 6, 2003 memorandum, entitled "Lead Action Level Exceedance in the District of Columbia," Mr. Rizzo noted that WASA had

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[79] According to the EPA, it also was in contact with DoH during the fall of 2002 on the lead issue. The EPA has stated that on November 26, 2002, it provided Ted Gordon of DoH with a summary of issues related to lead in drinking water and offered to provide any assistance required by DoH on the issue in the future. (Tab 13 at 15).

[80] In its written responses to questions, the EPA noted that it "did not see" the entire brochure and its contents until after it had been published and distributed. (Tab 13 at 22). It is not clear whether the EPA was suggesting that Mr. Rizzo never received the above-referenced e-mail from Ms. Lawson, or that he did receive it, but did not review its contents.

completed public education requirements, specifically noting the brochure's publication. (Tab 155 at 1). In addition, according to an article in *The Washington Post*, on January 8, 2003, Mr. Rizzo and his supervisor Rick Rogers briefed Donald Welsh, EPA Regional Administrator, about the LAL exceedance. (Tab 156). The *Post* article indicates that written notes for the briefing reveal that Mr. Rizzo stressed that "[WASA] was complying with the law by announcing the problem and alerting 'consumers how they can protect themselves from exposure to lead in drinking water.'" (*Id.*). The EPA's "Annual Compliance Report for Public Water Systems in the District of Columbia for Calendar Year 2002" further described that WASA satisfied LCR requirements by implementing the public education initiative and publishing the *Living Lead-Free in D.C.* brochure. (Tab 157 at 7).

Just prior to the brochure's publication, a number of high-level WASA personnel, including Mr. Cochrane, Mr. Brown, Ms. Lawson and Mr. Ricks, met to review the brochure. (Interview of Curtis Cochrane, March 31, 2004). When interviewed, WASA employees recalled that there was consensus that the brochure, as a technical matter, contained the mandatory language provided by the LCR.[81] (Interview of Curtis Cochrane, March 31, 2004; Interview of Kofi Boateng, April 7, 2004; Interview of Elizabeth Lawson, April 22, 2004). In addition, Mr. Johnson and Ms. Lawson showed the brochure, just prior to its publication, to Board Chairman Glenn Gerstell. Mr. Gerstell thought that the brochure looked impressive, but he inquired whether WASA had fully consulted with the DoH and the EPA in its preparation. (Interview of Glenn Gerstell, May 20, 2004). Assured that WASA had done so, Mr. Gerstell gave his approval to the brochure. (*Id.*).

WASA first distributed the brochure to customers on October 30, 2002. In a January 22, 2003 letter from Mr. Johnson to Mr. Rizzo,[82] WASA reported to the EPA that the *Living Lead-Free in D.C.* brochure was mailed to every address in the District and every billing address for all water bill accounts on October 30, 2002. (Tab 159 at 1). WASA further reported that it delivered brochures to the editorial departments of *The Washington Post* and *The Washington Times*;[83] seven television stations; 19 radio stations; three libraries; the D.C. Public

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81 Ms. Bhat appears also to have been pleased with the final content of the brochure, as on October 28, 2002, she thanked Ms. Lawson for her work on the document, e-mailing her that "the brochure looks great!" (Tab 158).

82 The LCR requires a water system to demonstrate that it has delivered public education materials within ten days after the end of each period the system was required to perform public education. (Tab 47 § 141.90(f)(1)). WASA, therefore, was first required to report such information by November 10, 2002. (Tab 49 at ¶ 44). WASA delivered its official report to the EPA on January 22, 2003, although WASA officials regularly communicated with Mr. Rizzo prior to that time regarding both production and delivery of their public education materials. (Tab 49 at ¶ 44; Tab 159). For instance, as discussed above, Ms. Lawson e-mailed Mr. Rizzo on October 25, 2002, in which she forwarded a final draft of *Living Lead-Free in D.C.* and explained that WASA would deliver the brochure to customers by first class mail. (Tab 144).

83 A February 12, 2004 e-mail from Ms. Bernhardt to Wendy Hartmann Moore, WASA's Interim General Counsel, among others, indicated that, although WASA delivered *Living Lead-Free in D.C.* and a public service announcement to the editorial departments of *The Washington* (continued...)

Schools; the DoH; nearly fifteen medical facilities; the office of D.C. Councilmembers Kathleen Patterson and Linda Cropp; and that it hand-delivered brochures to all volunteers who participated in the 2001-2002 monitoring period who had lead levels above the LAL. (Tab 159 at 1-2). WASA delivered brochures to newspaper editorial departments and television stations on October 30, 2002; to radio stations on October 31, 2002; and to various hospitals, schools, libraries, and other medical facilities over a six-week period starting November 4, 2002 and ending December 14, 2002. (Tab 159 at 2).[84] Such delivery appears to have complied with methods imposed by the LCR, (Tab 47 § 141.85(c)(2)), and substantially, if not entirely, met the October 31, 2002 deadline imposed by the EPA for the delivery of public education materials.

WASA published the brochure on its website as well, though some at the EPA considered the brochure difficult to locate and to download. In a November 27, 2002 e-mail to Mr. Rizzo, Chris Ball, who was then the EPA's State Liaison Officer to the District of Columbia, recommended that WASA "unbury the document in their website." (Tab 161 at 1). First, Mr. Ball suggested that WASA insert an obvious hyperlink on the front page of www.dcwasa.com to clearly direct persons to the brochure — for example, the website should "say[] 'for information on lead click here.'" (*Id.*). Second, Mr. Ball suggested that WASA provide a "text only" version of the document on its website. Although the document was available in PDF format, Mr. Ball indicated that his "aging computer has really struggled with [downloading the PDF file] so I can only imagine the problems other DC residents may have in downloading it." (*Id.*).[85]

Mr. Rizzo forwarded Mr. Ball's e-mail on to Ms. Lawson that day and noted that he too had had difficulty in locating the brochure on the website. (*Id.*).[86] Ms. Lawson replied soon thereafter, thanking Mr. Rizzo for the suggestions and indicating that "we will work on this right after Thanksgiving." (*Id.*). According to Ms. Lawson, she notified WASA's Information Technology Division, and they made the suggested changes. (Interview of Elizabeth Lawson,

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Post and *The Washington Times*, neither newspaper made mention of the brochure or printed anything related to the lead issue. Recognizing that neither newspaper printed materials that WASA submitted in 2002 regarding the lead issue, "WASA decided to go above what was required in order to inform the public, and pay for an advertisement that was printed in the public health section of the Post as detailed in the October 10, 2003 notification letter to the EPA." (Tab 160 at 1).

[84] The LCR adjusts its content requirements for pamphlets or brochures provided to facilities and organizations, such as public schools and/or local school boards; city or county health departments, etc. (Tab 47 § 141.85(c)(iii)). For pamphlets or brochures to such facilities and organizations, the LCR states that only certain portions of LCR-specified language be included, consisting of the LCR sections entitled "Health effects of lead" and "Steps you can take in the home to reduce exposure to lead in drinking water." (Tab 47 § 141.85(a)(1)(ii), (iv)).

[85] Mr. Ball nevertheless recognized that "WASA has already taken several steps to get this information out." (Tab 161 at 1).

[86] Mr. Rizzo also asked Ms. Lawson to send him two dozen copies of the *Living Lead-Free in D.C.* brochure. (*Id.*). Ms. Lawson later indicated that she would do so. (*Id.*).

April 22, 2004). However, Mr. Gans did not think that a change was ever made, because Ms. Lawson was preoccupied with other matters. (Interview of Roger Gans, April 2, 2004).

Another notable aspect of the timing and form of the brochure's distribution was the notice, printed on the brochure's cover, that "The District of Columbia Water and Sewer Authority and the District of Columbia Department of Health acknowledge National Lead Awareness Week and its impacts on your health." (Tab 145 at 1).[87] This reference to a lead awareness week came about because, by coincidence, the release of the brochure closely followed the end of "Lead Poisoning Prevention Week," a national lead awareness week that the EPA and the DoH observed from October 20 to October 26, 2002. (Tab 162; Tab 163). Lead awareness week promoted "awareness of the dangers of lead exposure, recommend[ed] preventative actions, and mark[ed] the 10th anniversary of the landmark 1992 Residential Lead-Based Paint Hazard Reduction Act." The week's theme — "Discover the Rewards of Lead-Safe Living" — highlighted "the importance of testing children and homes for lead and addressing lead-paint hazards in housing before people are exposed to this hazardous substance." (Tab 162). Consistent with the brochure's focus on Lead Awareness Week, the brochure took a broad approach to addressing lead hazards, including the lead content of drinking water. For example, the brochure summarized the health effects of lead and explained that lead poses greatest risk to young children and pregnant women (Tab 145 at 2); a broad overview of potential sources of lead, such as drinking water and lead-based paint, followed. (Tab 145 at 3-5).

The fact that WASA was readying a public education brochure as a result of the exceedance near the same time as Lead Awareness Week occurred appears to have been happenstance. The record is unclear as to who first suggested the inclusion in the brochure of a reference to Lead Awareness Week and of wide-ranging information regarding different types of lead exposure. According to Mr. Cochrane and Mr. Marcotte, the DoH may have first made the suggestion. (Tab 164 at 1506; Interview of Curtis Cochrane, March 31, 2004).

However the idea of a joint brochure was first raised, Mr. Johnson embraced it, because he worried that, absent the provision of additional information about various types of lead exposure, consumers might otherwise be unduly alarmed by the content of the LCR-specified language. (Tab 164 at 1508-11; Interview of Jerry Johnson, May 19, 2004; Interview of Elizabeth Lawson, April 22, 2004; Interview of Glenn Gerstell, May 20, 2004). For her part, Ms. Lawson felt that the issue of the exceedance was significant for a relatively small portion of the city — those persons served by lead service lines. Since the majority of the city were not served by such lines, she felt it was important that the brochure not unnecessarily cause panic or alarm, and she arranged the brochure in a fashion that would be less likely to do so. (Tab 165; Interview of Elizabeth Lawson, April 22, 2004; Interview of Curtis Cochrane, March 31, 2004).[88]

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87 A reference to Lead Awareness Week is also made in the headers to certain pages of the brochure. (Tab 145).

88 Other WASA personnel expressed similar thoughts. Commenting on an earlier draft of the *Living Lead-Free in D.C.* brochure, which included little more than the LCR-specified (continued...)

In discussions regarding the inclusion of this additional content, Mr. Brown expressed some concern about dispersing the LCR-specified language in a document containing other lead-related information. Nevertheless, Mr. Brown did not think that doing so violated the LCR and did not stand in the way of that decision. (Interview of Elizabeth Lawson, April 22, 2004). Mr. Cochrane also recalled that he had told Ms. Lawson, prior to the brochure's publication, that although the brochure contained the requisite LCR-specified language, albeit in a dispersed fashion, he had some concerns about how the information was presented, because it did not make clear that WASA had detected a lead problem through the testing process. (Interview of Curtis Cochrane, March 31, 2004). Mr. Cochrane believed that Ms. Lawson explained her support for the brochure's presentation by saying that she was concerned about creating a panic among WASA's customers. (*Id.*). Mr. Gans also recalled that he disliked the content of the brochure when he saw it, either just before or just after it was released to the public, because it did not clearly explain that WASA had exceeded the LAL. (Interview of Roger Gans, April 2, 2004). Mr. Gans also recalled disliking the idea of presenting the requisite information as part of Lead Awareness Week or along with the inclusion of information on the dangers of lead paint, in that it could cloud WASA's message about lead in the water. (*Id.*). However, Mr. Gans was unsure whether he expressed his concerns to anyone at the time. (*Id.*).

Combining the additional lead-related information with the LCR-specified language may not, in and of itself, have constituted a violation of the LCR. The LCR provides that a water system may include additional information, along with LCR-specified language, so long as the additional information is consistent with the information provided by the LCR and is in plain English that lay people can understand. (Tab 47 § 141.85(a)(1)). Some have argued that the *Living Lead Free in D.C.* brochure included a large volume of additional information in order to downplay the fact that, in about half of the drinking water samples for the 2001-2002 monitoring period, lead concentrations exceeded the LAL. WASA officials, however, consistently expressed the view that they included this additional information not in an attempt to hide information about the 2001-2002 exceedance or of the health effects of lead in water, but to ensure that customers received the information provided by the LCR in a proper context, so that they would not become unduly alarmed. (Interview of Michael Marcotte, May 25, 2004; Interview of Glenn Gerstell, May 20, 2004; Interview of Jerry Johnson, May 19, 2004; Interview of Elizabeth Lawson, April 22, 2004).

b) Content of the Brochure

The twelve-page brochure only briefly touched upon the findings of heightened lead levels in the water supply. Within the first two pages, the brochure stated that WASA and the DoH distributed the brochure to acknowledge Lead Awareness Week. The second page included the assertion that, "Every single day, WASA reliably delivers safe drinking water that meets or surpasses EPA requirements." (Tab 145 at 2). The remainder of the page generally

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language, Martin Wallace, the head of Water Service's Distribution Division, stated, "I believe this notice, although required, will initiate a rash of calls. I believe Water Services must work with the other departments to develop a strategy to handle this new development." (Tab 166 at 1).

described the health effects of lead and the fact that young children and pregnant women are at greatest risk from lead. (Tab 145 at 2). At the bottom of the third page, for the first time, the brochure stated that lead concentrations for the recent monitoring period exceeded the LAL. In so doing, WASA copied LCR-specified language directly into the brochure: "[I]n the annual monitoring period ending June 30, 2002, the lead results indicate that although most homes have very low levels of lead in their drinking water, some homes in the community have lead levels above the EPA action level of 15 parts per billion (ppb)." (Tab 47 § 141.85(a)(1)(i); Tab 145 at 3).[89]

Although WASA was following the LCR by copying such language, it has been criticized for relying on that language instead of providing details that highlighted the proportion of sampled residences with concentrations exceeding the LAL. For instance, at an April 7, 2004 oversight hearing on the detection of lead in the District's drinking water before the U.S. Senate Committee on Environment and Public Works's Subcommittee on Fisheries, Wildlife and Water, Jody Lanard, a risk communications consultant, provided written testimony that stated:

> By the time a reader gets to this sentence, the context of the brochure suggests that "some homes" are very few, and "above the EPA action level" is only a little above. The cheerful, informative tone of the preceding pages, in context with the celebratory title of the brochure, does not signal, "DO something! This is a surprising change in our findings! Take this seriously!" (Tab 167 at 3-4).

The *Living Lead-Free in D.C.* brochure did not again allude to the 2001-2002 monitoring period until the bottom of page seven, where it stated, "Despite our best efforts mentioned earlier to control water corrosivity and remove lead from the water supply, lead levels in some homes or buildings can be high."[90] On page 10, the brochure stated that WASA's monitoring program included 53 volunteers who have single-family residences, "some" of which tested above 15 ppb. (Tab 145 at 10). When interviewed, Ms. Lawson stated that she did not remember any discussion, before or after WASA and the DoH distributed the brochure, about the phrasing of the statement that "some" homes had elevated levels of lead in their drinking water. (Interview of Elizabeth Lawson, April 22, 2004). Although the brochure never explained that nearly half of the samples taken during the 2001-2002 monitoring period had lead concentrations in excess of 15 ppb, such detail was not provided for in the language listed in the LCR.

The *Living Lead-Free in D.C.* brochure otherwise contained nearly all of the language provided by the LCR. However, WASA altered several words or phrases and

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[89] The brochure went on to state, however, that "lead concentrations found in drinking water have consistently been below EPA action level requirements since 1994," language not required by the LCR. (Tab 145 at 3).

[90] With regard to this statement, Ms. Lanard, in her written testimony, stated, "CAN be high? Didn't they know? How many homes or buildings so far? HOW high? You cannot tell from the brochure." (Tab 167 at 4).

rearranged particular language, such that the brochure did not entirely track the text provided by the LCR. For example:

- The brochure omitted language that should have indicated that WASA and the EPA "are concerned about lead in your drinking water." (Tab 47 § 141.85(a)(1)(i)). The brochure also separated among several pages other language that appears in the LCR as a unified "Introduction" section. (Tab 47 § 141.85(a)(1)(i)).

- The brochure consolidated language contained in a LCR section entitled "Health effects of lead," (Tab 47 § 141.85(a)(1)(ii)), with language contained in a LCR section entitled "Lead in drinking water," (Tab 47 § 141.85(a)(1)(iii)). One subsection of "Lead in drinking water" appeared separately in the brochure from other subsections of "Lead in drinking water." (Tab 145 at 2, 6).

- When describing actions that consumers can take to reduce exposure to lead in drinking water, the LCR states that water systems should use the language, "For more information on having your water tested, please call [insert phone number of water system]." (Tab 47 § 141.85(a)(1)(iv)(A)). Although the WASA brochure listed some WASA telephone numbers elsewhere in the brochure, it omitted this language from the relevant section.

- The LCR requires water systems to include the following language in a discussion prescribing that consumers should "flush the tap" if results of a water test indicate that their drinking water contains lead levels above 15 ppb: "If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps one minute, before drinking." (Tab 47 § 141.85(a)(1)(iv)(B)(*1*)). Instead, the WASA brochure stated that customers should wait "perhaps ten minutes." (Tab 145 at 8).

- The LCR lists six precautions a consumer should take if the consumer's drinking water contains lead levels in excess of 15 ppb. (Tab 47 § 141.85(a)(1)(iv)(B)). The fifth precaution encourages consumers to determine whether they are serviced by a lead service line and describes how consumers can have such lines replaced. (Tab 47 § 141.85(a)(1)(iv)(B)(*5*)). While the *Living Lead-Free in D.C.* brochure contained the six precautions, it did not include the fifth precaution among the list of other precautions. (Tab 145 at 8). Rather, the brochure placed the language of the fifth precaution on a subsequent page. (Tab 145 at 9).

  Furthermore, the brochure changed the sequence of LCR language relating to this fifth precaution. After it described the first part of the fifth precaution, which discusses how consumers can determine whether they have a lead service line and whether plumbing in their home is lead-based, the brochure then presented two "additional measures" that customers can take to reduce

lead content — purchasing or leasing a home treatment device (e.g., water filter), and purchasing bottled water for drinking and cooking. (Tab 145 at 9). The LCR lists such additional measures as actions consumers may want to take *after* completing the six precautions listed in the LCR. (Tab 47 § 141.85(a)(1)(iv)(C)). However, the *Living Lead-Free in D.C.* brochure presents the additional measures *before* the second part of the fifth precaution, which describes measures consumers may take to replace lead service lines and explains that WASA is required to replace the portion of any line WASA owns which contributes more than 15 ppb to drinking water. Arguably, this change gave greater prominence than the LCR intends to water filters and bottled water as a solution, and correspondingly less prominence to lead service line replacement.

- The WASA brochure used language regarding lead service line replacement that differed from the language provided in the LCR. While the LCR-specified language states that a water system is "required to replace the portion of the line we own," (Tab 47 § 141.85(a)(1)(iv)(B)(*5*)), the WASA brochure stated that WASA is "required to implement a multi-year program to replace the portion of the line we own." (Tab 145 at 9). Additionally, instead of using language provided by the LCR to inform consumers that "[a]cceptable replacement alternatives [for lead service lines] include copper, steel, iron, and plastic pipe," (Tab 47 § 141.85(a)(1)(iv)(B)(*5*)), the brochure informed consumers that "[a]n acceptable replacement is copper." (Tab 145 at 9).

EPA Public Education Guidance[91] advises water systems that the language provided by the LCR constitutes "the minimum content of the printed public education materials." (Tab 50 at 26).[92] As was stated above, the LCR permits a water system to add additional information to the LCR-specified language, so long as the information is consistent with the LCR's language and is in plain English that can be understood by lay people. (Tab 47 § 141.85(a)(1)).

3. Public Service Announcements

WASA first released its public service announcement, as required by the LCR, in October 2002. The LCR requires water systems to make public service announcements to at least five of the radio and television stations with the largest audiences that broadcast to the community served by the water system. (Tab 47 § 141.85(c)(2)(iv)). Accordingly, WASA

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91 EPA Guidance materials provide instructive recommendations or interpretations but do "not impose legally-binding requirements on EPA, States, or the regulated community." (Tab 50 at *iii*).

92 The Guidance further advises that water systems may add or modify language, with State approval, so long as it does not contradict the minimum required information. (Tab 50 at 26).

delivered its public service announcement on October 30, 2002, to the editorial departments of *The Washington Post* and *The Washington Times*[93] and seven television stations. On October 31, 2002, WASA delivered the public service announcement to 19 radio stations. (Tab 159 at 1). The LCR requires that a water system deliver public service announcements to the media every six months for as long as the water system exceeds the LAL. (Tab 47 § 141.85(c)(3)). WASA, however, did not repeat the public service announcement in spring 2003. (Tab 168). This appears to be an inadvertent omission; when interviewed, Ms. Lawson indicated that she had no memory of failing to repeat the Spring 2003 public service announcement. (Interview of Elizabeth Lawson, April 22, 2004).

The LCR further states that water systems should include the following information in all broadcast material:

> (1) Why should everyone want to know the facts about lead and drinking water? Because unhealthy amounts of lead can enter drinking water through the plumbing in your home. That's why I urge you to do what I did. I had my water tested for [insert fee or $ per sample]. You can contact the [insert the name of the city or water system] for information on testing and on simple ways to reduce your exposure to lead in drinking water.
>
> (2) To have your water tested for lead, or to get more information about this public health concern, please call [insert the phone number of the city or water system]. (Tab 47 § 141.85(b)).

Rather than copy the language provided by the LCR, WASA's public service announcement, entitled "PUBLIC SERVICE ANNOUNCEMENT ON LEAD IN HOME PLUMBING," stated the following:

> The DC Water and Sewer Authority (WASA) wants District of Columbia residents to know the facts about lead and drinking water because potential elevated lead levels of lead can enter drinking water through your home's plumbing system.
>
> For additional information on testing and easy ways to reduce exposure to lead in your home plumbing, DC residents may contact the District of Columbia Water and Sewer Authority's Water Quality Division at (202) 612-3440. Residents may also visit WASA's Website at www.dcwasa.com. (Tab 169).

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[93] A February 12, 2004 e-mail from Ms. Bernhardt to Ms. Hartmann Moore and others stated that neither *The Washington Post* nor *The Washington Times* printed the public service announcement. Recognizing this, WASA subsequently paid for an advertisement in *The Washington Post*, as was previously noted. (Tab 160 at 1).

WASA's public service announcement contained much of the information required by the LCR, but it modified the LCR-specified language in ways that downplayed the health issue. For instance, rather than stating that "unhealthy amounts of lead can enter drinking water," (Tab 47 § 141.85(b)(1)), WASA stated that "potential elevated levels of lead can enter drinking water," (Tab 169). WASA also omitted language urging consumers to have their water tested and omitted pricing information for water testing.

When interviewed, Ms. Lawson could not recall any discussion of these alterations or omissions. (Interview of Elizabeth Lawson, April 22, 2004). Ms. Lawson stated that omitting the pricing information for water testing was not a practical concern, because WASA was offering free testing at the time. (Interview of Elizabeth Lawson, April 22, 2004). According to Ms. Lawson, Ms. Bernhardt crafted the public service announcement, while Ms. Lawson oversaw its production. (Interview of Elizabeth Lawson, April 22, 2004). She further recalled that WASA based the public service announcement on language in the LCR and on language from other cities' public service announcements. (Interview of Elizabeth Lawson, April 22, 2004). Indeed, Ms. Lawson thought that the public service announcement was an exact copy of that used by at least one other city. (Interview of Elizabeth Lawson, April 22, 2004).

4. 2002 Water Quality Report and Consumer Confidence Report

EPA regulations require water systems like WASA to prepare annual water quality reports (*i.e.*, consumer confidence reports or "CCRs"), (Tab 47 §§ 141.151 to app. A to subpt. O)), which must be reported by July 1 each year, (Tab 47 § 141.152(b)). Consumer confidence reports must contain information on the quality of water the system delivers, collected during, or prior to, the previous calendar year, and further characterize in an accurate and understandable manner any risks from exposure to detected contaminants. (Tab 47 §§ 141.151(a)-(b)). The following describes the 2002 Water Quality Report, to the extent that the report is relevant to WASA's response to findings of elevated lead levels in the District's water.

During the spring and summer of 2003, WASA prepared and distributed its 2002 Water Quality Report, including results for the 2001-2002 monitoring period. (Tab 170). A draft of the report was created by May 2003. In a May 21, 2003 e-mail, Ms. Lawson transmitted a draft Water Quality Report to Mr. Rizzo for review. (Tab 171 at WAS 0003002). The CCR indicated that "2.6 samples out of 53 [tested] above [the LAL]" and that 90% of the samples had lead levels less than or equal to 49 ppb. (Tab 171 at WAS 0003011). Mr. Rizzo responded by e-mail on May 22, 2003, to note only that the CCR contained three typographical errors, two of which regarded lead monitoring or exceeding the LAL. (Tab 172 at WAS 0003014). Mr. Rizzo stated, "The lead results should be '26 samples out of 53 above [the LAL]', not 2.6." (Tab 30] at WAS 0003014). He added, "In the 'Lead and Copper Monitoring Program' section, to be consistent with the sample number in the table, 50 should be changed to 53." (*Id.*). The final report included the revisions.

After the EPA review, WASA distributed the 2002 Water Quality Report to consumers in June 2003, and advertised it in *The Washington Post*,[94] meeting the regulatory deadline. (Tab 174). The report's content was largely in compliance with EPA regulations, which required WASA to display certain health information regarding lead, (Tab 47 §§ 141.153-141.154), and permitted WASA to add additional information for "public education consistent with, and not detracting from, the purpose of the report." (Tab 47 § 141.153(h)). WASA also included information in the report regarding source water, levels of detected contaminants, and compliance with drinking water rules, plus some educational material. (Tab 170).

The 2002 Water Quality Report has been the subject of criticism for using mild language to notify the public that lead concentrations found during the 2001-2002 monitoring period exceeded the LAL. The seven-page report discussed lead in drinking water for the first time on the third page, where it described WASA's lead and copper monitoring program. (Tab 170 at WAS 0001397). Within this description, the report stated:

> During 2002, concentrations found in these sampling programs exceeded EPA's action level based on analysis of 53 samples collected with the assistance of customers. WASA has embarked on remedial programs to meet EPA's requirements. Infants, young children, and pregnant women tend to be more vulnerable to lead than the general public. (Tab 170 at WAS 0001397).

On the fifth page, WASA provided a chart of regulated contaminants and corresponding concentrations in the District's drinking water. Included in the chart were lead monitoring results for the 2001-2002 period. The chart stated, "26 samples out of 53 above AL [*i.e.*, the action level]," (Tab 170 at WAS 0001399), and explained in a footnote that "EPA regulations require that corrective action be taken if greater than 5 of 50 samples exceed the action level," (Tab 170 at WAS 0001400). The chart further noted that 90% of samples had lead concentrations less than or equal to 49 ppb,[95] and that typical sources of contaminants include corrosion of household plumbing systems and the erosion of natural deposits. (Tab 170 at WAS 0001399). Although some have criticized the report for not emphasizing the LAL exceedance, EPA regulations did not require water systems to make stronger statements.

WASA included additional information on the first page of the report, namely a letter from Mr. Johnson to customers that stated, "We are once again proud to report that

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[94] On June 19, 2003, Ms. Lawson e-mailed a version of the advertisement, which explained that "[t]he [Water Quality] Report also provides information about the source of your water, how it is treated and tested, ***and best of all, that drinking water in the District of Columbia met or surpassed all EPA standards for safety and quality!***" (Tab 173 at 2) (emphasis in original). The advertisement also provided contact information to request copies of the Water Quality Report. (*Id.*).

[95] This is an error that escaped both WASA and Mr. Rizzo's review — the 90th percentile lead level with respect to the 2001-2002 monitoring period was 75 ppb. (Tab 106).

Washington, DC's drinking water met or surpassed all requirements of the federal Safe Drinking Water Act (SDWA) every single day in 2002." (Tab 170 at WAS 0001395).[96] Some have claimed that the impact of the report's "mild cautions" regarding lead concentrations in the District's drinking water was "diluted" by Mr. Johnson's letter. (Tab 2 at 21).

The cover of the 2002 Water Quality Report further declared, "Your Drinking Water Is Safe." (Tab 170 at WAS 0001394). (WASA has since removed the cover page from the electronic version of the 2002 Water Quality Report found on its website.) On March 5, 2004, Erik Olson, Natural Resources Defense Council Senior Attorney, testified before the U.S. House of Representatives Committee on Government Reform regarding lead contamination of the District's water supply. In his written testimony, Mr. Olson stated: "The WASA water quality reports issued to the public proclaiming that 'YOUR DRINKING WATER IS SAFE,' despite evidence to the contrary, was highly misleading, as were a variety of other WASA public communications." (Tab 176 at 5).

WASA officials previously debated use of the word "safe" when preparing its 1999 Water Quality Report. Ms. Bhat expressed her concerns about using the word "safe" in that report in a June 13, 2000 e-mail to Mr. Marcotte and Mr. Johnson, with a copy to Ms. Lawson. (Tab 177). She explained that the Campaign for Safe and Affordable Drinking Water (a coalition of several environmental groups that reviewed the content of such reports) "feel that unqualified statements of safety at the beginning of the report will result in the reader concluding that everything is OK and not bothering to review the rest of the report." (*Id.*). Moreover, EPA Guidance on preparing drinking water CCRs advises water systems to "[b]e cautious in using the word 'safe' since water that meets standards and is safe for most people might not be safe for infants, chemotherapy patients, or people with HIV/AIDS." (Tab 175 at 3).[97] Similar concerns were voiced to Covington by other environmental advocates. (Interview of Paul Schwartz, May 20, 2004). Despite this, WASA included the language stating "Your Drinking Water Is Safe" on

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[96] Similar language is specifically encouraged in EPA Guidance materials. EPA Guidance on preparing drinking water CCRs advises water systems that "[c]ustomers are most interested in a clear statement of whether or not their drinking water meets all EPA and state standards. Although it is not required by the regulations, you will help your customers if you tell them whether their water met all drinking water standards." (Tab 175 at 3). The Guidance further provides examples of such clear statements, including the following: "Last year, as in years past, your tap water met all EPA and state drinking water health standards." (*Id.*).

[97] Indeed, Ms. Bhat stated that it was because of such concerns that Ms. Bhat first drafted Mr. Johnson's introductory remarks "to include emphatic statements of 'meeting or exceeding the standards every day of 1999' and of WASA's commitment to providing its consumers with safe and affordable water." (Tab 177). She felt "this accomplishes our objective of a strong positive communication to our customers without crossing the line of an absolute, unqualified statement." (*Id.*). According to Ms. Bhat, both the EPA and the Campaign for Safe and Affordable Drinking Water provided positive feedback on a draft of the 1999 Water Quality Report, which included Mr. Johnson's introductory remarks, but did not use the phrase "Your Drinking Water is Safe." (*Id.*).

Water Quality Reports for 1999, 2000, 2001, and 2002. (Tab 170 at WAS 0001394; Tab 178 at WAS 0001372; Tab 179 at WAS 0001378; Tab 180 at WAS 0001386).

5. Additional Outreach Efforts

WASA made additional outreach efforts regarding lead in late 2002 and early 2003, including holding meetings, making telephone calls directly to consumers, providing free lead testing offers, offering a "Lead Service Hotline" to provide specific information to customers, and publishing information on its website, www.dcwasa.com. For instance, WASA held public meetings in the first half of 2003. WASA held a March 26, 2003 meeting for ANC Chairs and Civic Association Leaders, described more fully in Section V.D., to describe the lead service line replacement program, which WASA was required to implement in light of the exceedance. Mr. Marcotte delivered the presentation, but only six commissioners attended the meeting. WASA held two community meetings on the lead service line replacement program in May 2003, but turnout was low — six people attended a meeting held in the Southeast section of the District, while fifteen attended a meeting in the Northwest section. When interviewed, Ms. Lawson recalled that WASA advertised the meetings by letter, telephone, e-mail, and facsimile, and also advertised the meetings in newspapers. (Tab 181; Interview of Elizabeth Lawson, April 22, 2004).

6. Summary of WASA's Public Education Efforts

While WASA's outreach technically complied with much of the applicable regulatory public education requirements,[98] WASA did not effectively convey to consumers in its public education materials a sense of urgency about elevated lead concentrations in drinking water. In large part, this was due to the fact that the LCR-specified language for such materials does not include information clearly linking the provision of the information to the fact that a lead level exceedance has occurred, or to what the consequences of that exceedance are. In some instances, however, WASA took active steps to alter language provided in the LCR, or to shape the way that information was presented, in a manner that appears to have contributed to minimizing public concern over the lead monitoring results.

Nevertheless, the EPA was regularly engaged by WASA with regard to the content and the compilation of WASA's public education materials generated in response to the 2001-2002 exceedance and to have approved WASA's preparation and distribution of such materials. In no instance did Mr. Rizzo or the EPA object to WASA's public education materials, even in those situations where the materials altered language provided by the LCR.

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98 To this end, when Victoria Binetti, the EPA's Associate Director, Office of Municipal Assistance, Water Protection Division, forwarded EPA's "Annual Compliance Report for Public Water Systems in the District of Columbia for Calendar Year 2002" to WASA, Aqueduct, and DoH officials on June 27, 2003, she attached a cover letter that stated "there have been no violations of any drinking water regulations by [WASA] during calendar year 2002." (Tab 157 at 6; Tab 182 at 1).

D. Lead Service Line Replacement Efforts Relating to 2001-2002 LCR Monitoring Results

1. Summer 2002: Notification

As discussed in Section V.B, although the 2001-2002 lead monitoring period ran until June 30, 2002, in the fall of 2001, WASA had received the results for a sufficient number of samples to know that it would almost certainly exceed the LAL for the 2001-2002 monitoring period. As discussed above, Ms. Bhat and her supervisor Mr. Boateng dispute whether Ms. Bhat informed him of the nature of these elevated lead concentrations prior to the summer of 2002. Regardless of whether or when Ms. Bhat informed Mr. Boateng, however, WASA employees in the Engineering & Technical Services Division — the employees who would ultimately be tasked with the responsibility of replacing the lead service lines in accordance with the requirements of the LCR — did not learn that lead concentrations would likely exceed the LAL until the summer of 2002. According to Curtis Cochrane, a Program Manager in that division, Ms. Bhat first notified him of the exceedance when she visited him in his office in August 2002. (Interview of Curtis Cochrane, March 31, 2004). According to Mr. Cochrane, he immediately contacted his supervisor, Roger Gans, and the Director of Engineering & Technical Services, Len Benson, to inform them of the exceedance as well as the steps that WASA would therefore be required to take to comply with the LCR. (*Id.*).

The fact that the Engineering & Technical Services Division did not learn of the exceedance until months after Ms. Bhat was aware that it would likely occur and after she had communicated that information to the EPA (and, as she contends, to certain of her supervisors) had significant repercussions for the lead service line replacement effort. Mr. Gans and Mr. Benson told Covington that they regretted the delay in learning of the exceedance, because it prevented them from developing a plan of action earlier to replace lead service lines in accordance with the LCR and complicated the task of complying with the rule. (Interview of Leonard Benson, April 1, 2004; Interview of Roger Gans, April 2, 2004).

In recent years prior to the late summer of 2002, WASA had not been engaged to any significant degree in the replacement of lead service lines. (Interview of Michael Marcotte, May 25, 2004). As Mr. Boateng explained, when it became apparent that WASA would have to take action in response to exceeding the LAL, WASA was unprepared for the task. (Interview of Kofi Boateng, April 7, 2004). By the time the Engineering & Technical Services Division first learned of the exceedance, WASA was left with little time to evaluate its budget or to contact the EPA for possible funding, because the budgeting process for the following year had already been completed. (Interview of Michael Marcotte, May 25, 2004). Moreover, placing requests and receiving bids for a large construction contract to effectuate the replacement program would take about 120 days, and a moratorium established by the District Department of Transportation ("DDOT") prevented much construction from taking place on District roads from November until April. (*Id.*; Interview of Curtis Cochrane, June 23, 2004). In addition, a separate DDOT moratorium also made construction on roads paved in the last five years significantly more expensive. Together, these factors meant that, because WASA's Engineering & Technical Services Division only learned of the exceedance in August 2002, it was unlikely that any significant construction work would commence before late March 2003, at the earliest. (*Id.*).

WASA was not unfamiliar with the process of replacing lead service lines. Prior to the adoption of the LCR, WASA's predecessor, WASUA, had voluntarily replaced a number of lead service lines from 1986 through 1990 — a replacement effort totaling approximately 2,800 lead service lines in all. (Tab 183 at 1). That lead service line replacement effort ended in 1990, according to WASA, because of "DC budget limitations." (*Id.*). As the 1990s elapsed, and WASA tested below the LAL for a number of consecutive years at the end of the decade, the issue of whether to institute a lead service line replacement program was raised. According to an April 19, 2002 e-mail from Mr. Cochrane to Mr. Poirier of Baker Killam, an engineering consulting joint venture, WASA determined that adding the replacement of lead service lines to then-existing plans for water quality control would add an estimated cost of $93 million, an amount that Mr. Benson thought "was a lot to spend on something that was not a problem." (Tab 184). Mr. Cochrane's e-mail further states that Mr. Johnson and Mr. Marcotte agreed with the recommendation that WASA should not budget for the systematic replacement of lead service lines each year, and instead would only replace such lines if they were found leaking. (*Id.*).

Significantly, even prior to the time when the LAL exceedance was made public in August 2002, one DoH employee, Jerusalem Bekele, had been pushing WASA and the EPA to reinstitute a regular program of lead service line replacement. As early as the end of 2001, Ms. Bekele had contacted both Mr. Boateng and Ms. Bhat, urging them to allocate money for lead service line replacement efforts. (Interview of Kofi Boateng, April 7, 2004). Her call was prompted by the fact that she received approximately 30 to 40 calls per year from residents who were concerned about the issue. (Tab 185). Ms. Bekele stated in an e-mail that, at that time, both Mr. Boateng and Ms. Bhat explained to her that WASA did not have a lead service line replacement program. (*Id.*). Mr. Boateng has explained that, in his discussions with Ms. Bhat regarding Ms. Bekele's inquiry, Ms. Bhat did not mention the fact that WASA would likely exceed the LAL for the monitoring year, such that it would be *required* to replace a significant number of its lead service lines as a result. (Interview of Kofi Boateng, April 7, 2004). He said that even though Ms. Bhat did not provide him with this information, he allocated some money in the coming months for general service line replacement efforts. (Tab 128; Interview of Kofi Boateng, April 7, 2004).

Ms. Bekele continued her efforts in July 2002, as she contacted the EPA to request that the agency add a lead service line replacement project, in light of the fact that an estimated 7% of District children had tested with elevated levels of lead in their blood in the past. (Tab 186 at 17). Kenneth Pantuck, an EPA Project Officer for water and wastewater infrastructure grants, replied that, while he was sympathetic to Ms. Bekele's concerns, "there may be other more cost effective ways to deal with the problem rather than the elimination of all lead service lines." (Tab 187). He said that he would seek the input of WASA. (*Id.*). In a July 22, 2002 e-mail to the EPA, Mr. Marcotte responded to the agency's request for input, stating that, because water quality testing in recent years had indicated that sampling results had not exceeded the LAL, WASA did not support the inclusion of a lead service line replacement program in current requests for federal funds. (Tab 188). Mr. Marcotte stated that WASA's practice was to replace lead service lines on non-private property in certain limited circumstances, such as in conjunction with other system improvement projects, upon customer request or in conjunction with certain private remodeling projects. (*Id.* at 2). A policy statement that Mr. Cochrane forwarded Mr. Gans on August 5, 2002 largely mirrors this explanation. (Tab

189 at 5). At the time of his response, Mr. Marcotte has said, he was unaware that lead monitoring results for the period had indicated for months that WASA would exceed the LAL, as he learned weeks later. The EPA forwarded Mr. Marcotte's response on to Ms. Bekele, indicating that the EPA would revisit the issue if the District's drinking water exceeded the LAL in the future. (*Id.*). This assertion was made despite the fact that Mr. Rizzo of the EPA had been provided with indication of the likely fact of an LAL exceedance back in March 2002.

Thus, Ms. Bekele's request for funding for lead service line replacement in 2001 and 2002 could have been — but was not — considered in the context of high lead results that were being reported by the Aqueduct to Ms. Bhat (and through her, to Mr. Rizzo). Ms. Bekele continued to follow up on the issue with Ms. Bhat, however, by calling Ms. Bhat on July 31, 2002, with an inquiry from a customer regarding lead service line replacement. An e-mail from Ms. Bhat indicates that Ms. Bekele had stated that WASA did in fact replace lead service lines in some instances (and cited Mr. Marcotte's July 22 e-mail to that effect). (Tab 128). Ms. Bhat e-mailed Mr. Boateng on August 2, with a copy to Mr. Marcotte, indicating that she had not been aware of this policy and that there "are a number of inquiries from customers on this subject." (*Id.*). Ms. Bhat noted in her e-mail that WASA would exceed the LAL for the monitoring period just ended, such that "customer calls on this issue will increase." (*Id.*). She asked Mr. Boateng if there were any changes to the lead service line replacement policy that she should be aware of. (*Id.*). Mr. Boateng did not respond to Ms. Bhat's e-mail until August 19, 2002, a time period after he had been alerted to the fact of the LAL exceedance. His e-mail stated, in part, as follows:

> "Nothing has really changed about the WASA lead replacement policy. WASA will accommodate specific customer needs, and generally refrain from replacing lead services. As an instant [*sic*], in a situation when a customer with a demonstrably high concentration of lead in their service line opts to replace their section of the line, DWS may consider replacing our section of the service, and thus meet the customer half way. These instances, however, have so far been purposefully few due to our available resources." (Tab 128).

Mr. Boateng further stated that WASA had not publicized this approach and that it needed to develop a set of criteria for determining which lines to replace. (*Id.*).

2. Fall 2002: Taking Inventory and Developing a Replacement Strategy

Once WASA's Engineering & Technical Services Division became aware that lead concentrations had exceeded the LAL for the 2001-2002 monitoring period, the Division undertook the task of developing a plan of action to comply with the lead service line replacement requirements. Under the LCR, a utility whose lead concentrations exceed the LAL after water treatment has been optimized must replace 7% of the inventory of lead service lines in the system each year until its 90th percentile test results fall below the LAL. The utility must also develop an inventory of existing lead service lines, in part to determine how many lead service lines it has to replace annually.

In the fall of 2002, WASA began to explore its options under the LCR and to develop its plan of action for complying with these requirements. According to Mr. Cochrane, soon after he informed Mr. Benson and Mr. Gans of the exceedance, the three began developing this plan. (Interview of Curtis Cochrane, March 31, 2004). Mr. Benson charged Mr. Cochrane with the ultimate responsibility for this effort. (*Id.*; Interview of Leonard Benson, April 1, 2004). Mr. Cochrane, in turn, contracted much of the planning work to Baker Killam, the engineering consulting joint venture with which WASA had worked in the past.[99] (Interview of Curtis Cochrane, March 31, 2004).

From the beginning of the planning efforts, WASA was under the impression, conveyed by the EPA, that it would have until the end of 2003 to complete its lead service line replacement efforts for the year. Mr. Benson told Covington that, sometime in the late summer or fall of 2002, Mr. Rizzo of the EPA told him that the deadline for replacing these service lines was December 31, 2003. (Interview of Leonard Benson, April 1, 2004). Mr. Marcotte believed that Mr. Rizzo first made this statement during a "summit" meeting in the fall of 2002 between WASA employees and the EPA regarding WASA's approach to the lead service replacement requirement. (Interview of Michael Marcotte, May 25, 2004). This meeting may have been one of the September 2002 meetings between WASA, the EPA, and the Aqueduct, which were referenced in Section V.C and which are also discussed below. The EPA has confirmed that it initially provided WASA with this December 31, 2003 deadline. (Tab 13 at 20). (As discussed below, however, the EPA later moved up the deadline to September 30, 2003.)

In late summer 2002, WASA asked Baker Killam to draft a memorandum on the regulatory requirements for a large water system whose lead levels exceeded the action level. (Tab 191). Baker Killam's memorandum explained that the LCR requires such water systems to replace 7% of their lead service lines annually and take certain public education steps. (*Id.*). However, it noted that a "system is not required to replace an individual lead service line if the lead concentration of all samples from the line is less than or equal to 0.015 mg/L. This line counts as a replaced line." (*Id.*). The memorandum thus recommended that WASA conduct testing of the water in lead service lines prior to physically replacing them, such that it could count those lines that tested under the LAL as being "replaced" and subtract that number from the total amount of lead service lines that were required to be replaced during the year. (*Id.*). The memorandum also explained that where a system replaces just the public portion of a lead service line, it must provide notice to those served by the line 45 days in advance and conduct a follow-up test within 72 hours of replacement. (*Id.*).

Around the same time, Baker Killam began to develop an inventory of lead service lines in D.C. and identify their locations. (*Id.*; Interview of Curtis Cochrane, March 31, 2004). Baker Killam, under the supervision of Mr. Cochrane, started with the Weston Report, which identified 28,161 lead service lines in D.C. as of 1990. (Tab 183 at 1; Interview of Curtis

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[99] Many documents pertaining to WASA's relationship with Baker Killam contain the phrase "EPMC IIA." EPMC, which stands for Engineering Program Management Company, refers to a type of contract that WASA has with outside companies. WASA has an "EPMC IIA" contract with Baker Killam to replace lead service lines.

Cochrane, March 31, 2004). Appreciating that the Weston Report may have had some initial inaccuracies and that it did not reflect recent lead service line replacements, WASA and Baker Killam undertook an effort to update its inventory using lead service line replacement documents and other handwritten Customer Service records. (Interview of Curtis Cochrane, March 31, 2004; Interview of Jodye Russell, April 15, 2004). The process of cross-checking the Weston Report with the handwritten information from Customer Service was spearheaded by Charlie Keily of WASA's Customer Service Division. (*Id.*). Although the process was extremely tedious, by incorporating this additional information, WASA eliminated a number of lines that had been identified as lead service lines in the Weston Report. (*Id.*; Interview of Curtis Cochrane, March 31, 2004). By November 4, 2002, and possibly earlier, Baker Killam had determined that 3,368 of the lead service lines identified in the Weston Report had been replaced between 1990 and 1997. (Tab 192 at 3). Baker Killam estimated that the number of lead service lines "may be as low as 20,000, but for estimating purposes, it is assumed that DCWASA currently has approximately 22,000 lead services in the system." (*Id.* at 4). Baker Killam thus estimated that the LCR required WASA to replace 1,600 lead service lines the next year. (*Id.*). This is roughly consistent with Ms. Bhat's and Mr. Cochrane's estimates from September 2002. (Tab 193; Tab 194 at 3).

As discussed above, these efforts were complicated by the fact that, by the time the Engineering & Technical Services Division learned that lead concentrations would exceed the LAL, it was unlikely that WASA could begin physically replacing any lines until the spring of 2003, and by the fact that WASA did not have any significant program of lead service line replacement in place. Faced with these difficulties, WASA sought to minimize the costs of its lead service line replacement program. As an October 18, 2002 e-mail from Ms. Bhat indicates, WASA estimated the cost of physically replacing 7% of its lead service lines at $7.5 million per year. (Tab 195). In response to those cost estimates, WASA felt, "other options and relative cost [*sic*] have to be revisited/investigated." For this reason, as early as September 2002, Mr. Marcotte directed WASA's engineers to coordinate replacements with other existing road projects. (Tab 196).

In addition, as recommended in Baker Killam's September 5, 2002 memo, early on, WASA planned to rely significantly on testing in lieu of replacement. Mr. Cochrane and Mr. Benson said that, as early as August 2002, Mr. Cochrane realized that, under the LCR, WASA could test lead service lines in lieu of replacing them if the lines showed lead levels below the LAL. (Interview of Curtis Cochrane, March 31, 2004; Interview of Leonard Benson, April 1, 2004). According to Mr. Cochrane, WASA's original plan, which Mr. Benson and Mr. Marcotte approved, was to physically replace 500 to 600 lead service lines and to count approximately 1,000 to 1,100 as having been replaced after testing showed that the water in those lines was under 15 ppb. (Interview of Curtis Cochrane, March 31, 2004).

WASA initially believed that it would need to test only 1,200 to 1,300 lead service lines to find 1,100 that tested below the LAL. (*Id.*). It held this belief despite the fact that, in the last monitoring period, nearly 50% of the 53 samples that were collected tested over the LAL. In an interview, Mr. Marcotte explained that he projected that far more than 50% of lead service lines would test below the LAL, despite the prior monitoring period's results,

because he deemed those prior results likely to be a "fluke," drawn from a small sample pool. (Interview of Michael Marcotte, May 25, 2004).

There were further internal discussions at WASA of the idea of testing in lieu of replacement during September 2002. In an e-mail chain dated September 13, 2002, Mr. Cochrane raised the idea with Ms. Bhat and asked whether, if a lead service line tested below the LAL, this would relieve WASA of ever having to test the service line again. (Tab 197 at 1-2). Ms. Bhat was cautious, and suggested that they discuss the issue further at their next meeting. (*Id.*)

WASA likewise discussed testing in lieu of replacement, as well as other issues, in meetings and phone calls with the EPA during September 2002. In their September 4, 2002 meeting, WASA and the EPA discussed the LAL exceedance. (Tab 129; Tab 138 at 323-24; Interview of Kofi Boateng, April 7, 2004; Interview of Silas Obasi, April 20, 2004). As noted earlier, Mr. Boateng, Ms. Bhat, and Mr. Obasi from WASA attended this meeting, as did Mr. Rizzo and Mr. Jerpe for the EPA. (Tab 129; Tab 138 at 323-24). Ms. Bhat's memorandum summarizing this meeting indicates that the participants discussed what steps WASA would need to take to comply with the LCR, including the replacement of 7% of lead service lines in the next year. (Tab 129). It also indicates that Mr. Rizzo stated that replacing lead service lines will not necessarily solve the lead problem, though it would earn WASA credit for a "good faith effort." (*Id.*). Mr. Boateng said that WASA had "limited resources" to make these replacements. (*Id.*)

In the second meeting between WASA and the EPA on September 13, 2002, which included Mr. Cochrane, Mr. Boateng, and Ms. Bhat from WASA; Mr. Rizzo and Mr. Jerpe for the EPA; and Mr. Stowe and Ms. Turner from the Aqueduct, Mr. Cochrane raised the possibility of testing lead service lines in lieu of replacement. (Tab 138 at 331-36; Tab 198; Interview of Kofi Boateng, April 7, 2004). According to Ms. Bhat, Mr. Rizzo could not say during the meeting that the LCR would allow for testing in lieu of replacement. (Tab 129 at 331-36). Mr. Boateng's e-mail to Mr. Marcotte of September 16, 2002 confirms that this issue was discussed at the meeting and that there was an "uncertainty" concerning whether this approach was proper. According to Mr. Boateng, the EPA offered other interpretations of the LCR language that suggested that testing in lieu of replacement was not permitted. (*Id.*). An internal e-mail from Mr. Cochrane on September 18, 2002 further confirms that Mr. Rizzo had expressed reservations in the past about the prospect of testing in lieu of replacement. (Tab 141). Mr. Cochrane's e-mail stated that in a conversation with Mr. Rizzo on September 11, 2002, "Mr. Rizzo did not think that [lines tested in lieu of replacement] would count." (*Id.*). Mr. Boateng nevertheless appears to have been excited about the prospect for this approach, as reflected in an e-mail from him to Mr. Marcotte, which noted that "If [WASA's] interpretation holds we could potentially narrow the replacement list down significantly by just conducting tests." (Tab 198).

Mr. Rizzo's concerns notwithstanding, EPA guidance for water utilities expressly permits testing in lieu of replacement. On September 18, 2002, Carol Walczyk of Baker Killam forwarded several WASA employees guidance that she found on EPA's website. (Tab 199). The guidance states: "You are not required to replace an individual lead service line if the lead

concentration of all samples from the line is less than or equal to 0.015 mg/L. This line counts as a replaced line." (*Id*).[100] The EPA has confirmed that they were made aware in November 2002, in a telephone call with WASA officials, that WASA would move forward with a replacement plan that included testing in lieu of replacement. (Tab 13 at 19). The EPA does not appear to have objected to this portion of WASA's plan at the time.[101]

Individuals from WASA's Engineering & Technical Services, Water Services, and Customer Service divisions met in the fall of 2002 to discuss the lead service line replacement program. (Tab 194; Tab 200 at 2). Mr. Benson's e-mails indicate that he kept Mr. Marcotte abreast of these discussions and that Mr. Benson sought to discuss with Mr. Marcotte issues such as whether WASA should replace only the minimum number of lead service lines or instead institute a program to replace all lead service lines and how WASA should ensure that it complies with the LCR. (Tab 200 at 1).

In developing a plan of action to comply with the LCR, Baker Killam used the Weston Report to prioritize lead service lines, both for replacement and for testing in lieu of replacement. The Weston Report divided lead service lines into four categories based on the level of lead concentrations indicated in test results at the time of the report for the block where the line was located: Category 1 contained lead service lines whose test results showed concentrations of less than 10 ppb of lead; Category 2, 10 to 20 ppb; Category 3, 20 to 50 ppb; and Category 4, 50 or more ppb. (Tab 201 at 20; Interview of Curtis Cochrane, March 31, 2004). The Weston Report also included approximately 14,000 "unclassified" lines for which test results were unavailable at the time of the report. (*Id.*). Mr. Cochrane explained that WASA prioritized the lines most likely to have high lead concentrations — those in Categories 3 and 4 — for physical replacement, while it planned to turn to the unclassified and Category 1 lines for testing in lieu of replacement, since these would be most likely to have low levels of lead. (Interview of Curtis Cochrane, March 31, 2004). These priorities were then considered in light of other factors, such as whether there were construction moratoriums on certain blocks. (*Id.*). An e-mail from Mr. Cochrane to Ms. Bhat on September 18, 2002 confirms that he recommended that WASA "prioritize and replace the worst first." (Tab 202). For the testing effort, by contrast, a November 7, 2002 e-mail from Mr. Gans to Mr. Cochrane and others indicates that Baker Killam would focus its testing efforts on Category 1 lines. (Tab 203).[102]

There is evidence that individuals outside of WASA made separate requests for prioritization. For example, on January 3, 2003, Ms. Bekele e-mailed Ms. Bhat to request that

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[100] This guidance is still currently available on the EPA's website. (*See* http://www.epa.gov/safewater/lcrmr/pdfs/guide_lrcmr_pws_rprtg.pdf).

[101] The EPA points out that it has repeatedly requested that, in the future, WASA emphasize physical replacements over testing in lieu of replacement. Further, in the recent administrative order the EPA signed with WASA, WASA agreed that all lead service line replacements from October 2004-September 2006 would be physical replacements. (Tab 13 at 20).

[102] A December 6, 2002 PowerPoint presentation, however, says that WASA would focus on the unclassified lines for testing in lieu of replacement. (Tab 201 at 21).

WASA give priority for physical replacement of lead service lines to the homes of children who have high levels of lead in their blood. (Tab 185). Mr. Marcotte also recounted one instance in which D.C. Council member James Graham requested priority treatment for a vocal constituent. (Interview of Michael Marcotte, May 25, 2004). Mr. Marcotte indicated that, after raising objections, WASA ultimately acceded to Mr. Graham's request, but shortly thereafter implemented an express policy against granting such requests. (*Id.*)

As of November 5, 2002, WASA was still considering the mechanics of its lead service line replacement plan, and how many of the lines it would physically replace. On that date, Baker Killam provided WASA with a memorandum that outlined three alternative strategies for replacing 7% of its lead service lines. (Tab 204). The first option was simply to replace all of the lead service lines physically, which Baker Killam estimated would cost $11.2 million. (*Id.*). The second option was to test all lead service lines first and then replace those whose results exceeded the LAL, and the third option was to test and replace lead service lines concurrently. Baker Killam estimated that the second and third options would each cost $3.8 million. (*Id.*). Because the second and third options were expected to cost the same amount, but the third option would result in earlier replacements, Baker Killam recommended the third option. (*Id.*). An e-mail from Mr. Gans to Mr. Boateng, which forwarded Baker Killam's memorandum, indicated that Mr. Marcotte intended to recommend the third option to the WASA Board of Directors. (Tab 205).

In a November 6, 2002 e-mail, Mr. Gans informed Mr. Cochrane and others that, pending Mr. Marcotte's presentation of WASA's plan to the Board of Directors, Mr. Benson had directed the Engineering & Technical Services Division to begin to implement the third option provided in Baker Killam's memorandum. (Tab 206). Mr. Gans's e-mail is one of the earliest full elaborations of WASA's plan at the time to replace (or test in lieu of replacement) 1,600 lead service lines. It said that WASA would test 1,250 lead service lines, implicitly assuming that 1,000 of these would have lead results below the action level, and would physically replace 600 lines. (*Id.*). Of the physical replacements, WASA's plan, as enunciated in Gans's e-mail, was to replace 350 lines through existing DDOT or WASA contracts and hire an outside firm for the replacement of the remaining 250 lines. (*Id.*). Another e-mail from Mr. Gans to Mr. Poirier later the same day indicates that Mr. Boateng told Mr. Gans that the Water Services Department would not be able to handle the testing of 1,250 lines, which was far more than the department tested as part of its routine monitoring efforts. (Tab 207). Therefore, Mr. Gans instructed Baker Killam to handle this effort. (*Id.*).

Mr. Gans also instructed Baker Killam to maintain the results of 1,250 tests in a WASA database, which Baker Killam was in the process of updating in November 2002 based on the Weston Report and other data. (Tab 203). In connection with this, an internal Baker Killam memorandum dated November 7, 2002 said, "Integration of the water quality database and lead service line database is important to investigating where lead service line testing and replacement should made." (Tab 208). This memorandum indicated that Mr. Marcotte instructed that this coordination of data take place. (*Id.*).

E-mail and interview accounts indicate that Mr. Marcotte made a presentation to the Board of Directors the next day, November 7, 2002. (Tab 206; Tab 207; Interview of Curtis Cochrane, March 31, 2004). According to Mr. Cochrane, the Board members asked Mr.

Marcotte and Mr. Cochrane a number of questions regarding aspects of WASA's plan, including its decision to test in lieu of replacement. (Interview of Curtis Cochrane, March 31, 2004). Mr. Cochrane and Mr. Marcotte explained that this decision was based on both cost and expediency. (*Id.*). (The minutes from this Board meeting, however, do not indicate that this matter was discussed.) (Tab 209).

Baker Killam continued to plan and prepare for the testing and replacement effort throughout the fall of 2002. On November 14, 2002, Mr. Wujek gave Mr. Gans and Mr. Cochrane a draft schedule for the testing and replacement of the requisite 1,600 lines. (Tab 210). The following day, Mr. Wujek asked Mr. James Shabelski, a WASA engineer, for data concerning lead service lines that DDOT would replace. (Tab 211; Tab 212). Six days later, on November 20, 2002, WASA employee Eva Szabat e-mailed an employee of DDOT to coordinate the replacement of lead service lines in compliance with EPA regulations. (Tab 213).

On November 21, 2002, Mr. Marcotte gave the Operations Committee of the WASA Board of Directors an update on WASA's efforts in the wake of the lead exceedance. (Tab 214). The minutes of this meeting regarding Mr. Marcotte's update are fairly general, indicating only that capital improvement money would fund some lead service line replacement projects and that WASA was continuing to improve its database of lead service lines. (*Id.*).

Although Mr. Marcotte, Mr. Benson, and Mr. Cochrane, as well as the Board of Directors, discussed WASA's replacement plan throughout the fall of 2002, it appears that Mr. Johnson was not very involved in these discussions. On December 4, 2002, Mr. Gans sent Mr. Johnson a memorandum that outlined the plan to test 1,250 lines and, assuming that 1000 would "pass," to replace 600 lines. (Tab 215). The memorandum further elaborated that to reach 600 physical replacements, WASA planned to replace 320 lines through existing DDOT or WASA Capital Improvement Program ("CIP") projects; 30 lines already identified for replacement through the Department of Water Services Infrastructure and Replacements Contract for FY03; and 250 lines by hiring an outside contractor. (*Id.*). Mr. Gans said to Mr. Johnson that for WASA to implement this plan, "your approval ... is required." (*Id.*). Mr. Gans appears to have met with Mr. Johnson and others on December 6, 2002 to discuss the consequences of WASA's exceeding the LAL. (Tab 216 at 2). Among the issues discussed at this meeting was WASA's responsibility to replace the private portion of all lead service lines, ultimately at the homeowner's expense. (*Id.*). A December 12, 2002 draft schedule for these replacements more fully explained WASA's plan to replace 1,600 lines by December 31, 2003. (Tab 217).

With regard to WASA's reliance on DDOT for the replacement of a significant number of lead service lines, Ms. Russell said that WASA had an ongoing informal agreement with DDOT, under which WASA would review upcoming DDOT projects for opportunities to include lead service line replacements. (Interview of Jodye Russell, April 15, 2004). Where such opportunities existed, DDOT or its contractors would replace the lead service lines and WASA would reimburse DDOT for the marginal cost of service line replacement over the DDOT street repair project. (*Id.*). WASA believed that this was a cost-effective way to generate a significant number of lead service line replacements. (*Id.*). According to Ms. Russell, WASA's in-house design team, including Jim Shabelski, Eva Mortenson, and Frank Anderson, reviewed the pending DDOT projects and determined which DDOT projects provided opportunities to replace lead service lines. (*Id.*). Ms. Russell said that DDOT agreed in general to these

arrangements, but never specifically committed to complete a certain number of lead service line replacements. (*Id.*).

Around the same time as Mr. Gans's December 4 memorandum to Mr. Johnson, Baker Killam and WASA discussed how WASA should implement the LCR's requirement that it offer to replace the private portions of lead service lines at the homeowner's cost. On December 19, 2002, Mr. Poirier wrote a memorandum to Mr. Gans, copying Mr. Cochrane, that discussed various means of accomplishing this objective. (Tab 218). Around the same time, Mr. Wujek sent Mr. Gans a series of draft letters to homeowners with regard to lead testing and replacement. (Tab 219).

By December 27, 2002, Baker Killam recognized that WASA was "behind schedule" with the lead service line replacement effort. (Tab 220). In an e-mail on this date, Mr. Poirier warned Mr. Gans about the delay and said, "It is very important that these projects move forward as soon as possible in order to meet the December 31, 2003 EPA lead service replacement compliance deadline." (*Id.*). Mr. Poirier's e-mail stated that the delay was caused by the fact that Mr. Johnson had not yet approved (i) the transfer of funds for a lead service line replacement contract nor (ii) the content of notification letters regarding the lead service line replacement program to the Mayor, Council members, residents, and other officials. (*Id.*). A February 20, 2003 e-mail from Mr. Gans indicates that, as of two months later, the sampling program remained delayed because Mr. Johnson had still not approved or signed the letters that Mr. Poirier mentioned, letters that "he has had . . . since early December" and to which he was making "'significant changes.'" (Tab 221). Later WASA documents note that these letters were not sent out until late February and early March 2003. (*Id.*; Tab 222 at 10).

3. Winter and Early Spring 2003: Developing the Replacement Plan

The planning phase of the lead service line replacement effort continued into 2003. On January 30, 2003, Baker Killam sent Mr. Gans another memorandum requesting certain information about WASA's lead testing to date. (Tab 223). A draft memorandum to Mr. Johnson from Mr. Gans, which Mr. Gans sent to a number of people within WASA via e-mail on January 31, 2003, indicates that WASA was readying its public education efforts regarding the replacement program, planning public meetings, and preparing to coordinate with homeowners for the payment for replacing the private portion of lead service lines. (Tab 216). According to this draft memorandum, WASA was aware that it would be required to conduct testing within 72 hours in those instances where it replaced only the public portion of a service line. (*Id.*).

As WASA's lead service line replacement plans crystallized in early 2003, WASA undertook to inform its workers, though Christopher Hawthorne, the president of American Federation of Government Employees Local 872, that it had hired an outside contractor to conduct its lead service line replacement effort.[103] (Tab 224). On February 6,

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[103] Mr. Hawthorne told Covington that WASA's hiring of an outside contractor to do this work caused low morale among WASA employees. (Interview of Christopher Hawthorne, May 21, 2004).

2003, Mr. Boateng sent Mr. Hawthorne a letter informing Mr. Hawthorne that WASA planned to implement a Lead Service Lines Replacement Contract. (*Id.*). The letter, which contained information that WASA knew in 2002, such as Baker Killam's three alternative plans, indicated that under the plan that WASA selected, testing and construction would be complete by March 2003 and October 2003, respectively. (*Id.* at 6).

In February 2003, WASA faced another delay, this time with the Customer Service Division's review of handwritten and other records in an effort to revise the Weston Report's database. According to a series of e-mails from early February 2003, Mr. Keily's division had reviewed only half of the approximately 80,000 "tap" records by mid-January. (Tab 225). Mr. Keily also indicated that he had informed others from the beginning that his division did not have enough resources to handle this effort. (*Id.*). Mr. Benson's e-mail to Mr. Gans indicates that he gave Mr. Gans responsibility for resolving this issue. (*Id.*)

As discussed in more detail below, throughout the first half of 2003, WASA faced numerous additional setbacks to its original lead service line replacement plan. Physical replacements had already been scheduled for a late start in early 2003, according to several WASA employees, given the moratorium DDOT typically imposed on construction-related activities on D.C. roads during winter months. (Interview of Leonard Benson, April 1, 2004; Interview of Roger Gans, April 2, 2004; Interview of Curtis Cochrane, March 31, 2004). While this moratorium did not preclude lead service line replacements, it would have made them significantly more expensive. (Interview of Roger Gans, June 23, 2004). In addition, WASA apparently faced difficulty in obtaining the permits required for replacing the lead service lines, which contributed to WASA's late start on replacement efforts. (Interview of Leonard Benson, April 1, 2004; Interview of Roger Gans, April 2, 2004; Interview of Curtis Cochrane, March 31, 2004). According to Ms. Russell, replacing a lead service line initially required WASA to obtain four permits: two public space permits, a lead service line replacement permit, and an erosion and sediment control permit. (Interview of Jodye Russell, April 15, 2004). Ms. Russell has since negotiated a single "blanket permit" that satisfies most of the requirements and facilitates the permitting process. (*Id.*)

In addition to the other challenges facing WASA at this time, it also had to find a sufficient number of homeowners willing to have their water tested as part of its testing in lieu of replacement efforts. As of the spring of 2003, WASA anticipated needing to find 1,250 volunteers. This amounted to a huge endeavor for WASA, which, as noted earlier, had often struggled to line up as few as 50 volunteers per year for its tap monitoring program.

By late February and March 2003, after the draft letters were finally approved by Mr. Johnson, WASA sent several letters and held a series of meetings to notify interested parties of its plan to replace the necessary number of lead service lines. As noted above, between late February and early March 2003, WASA sent a number of such letters to DoH, DDOT, the Aqueduct, and others. Additionally, on February 24, 2003, WASA sent letters to members of the D.C. Council outlining its plan to replace lead service lines. In this letter, Mr. Johnson told Council members that WASA intended to replace 600 lead service lines for 2003, half of which would come through DDOT and half of which would come through "construction contracts administered by WASA." (Tab 183; Tab 226). Although the letter noted that WASA was initiating a lead service line replacement program "under federal regulations" and referenced

information in WASA's *Living Lead Free in D.C.* brochure, it did not specifically state that the replacement efforts were necessitated by WASA's exceedance of the LAL. (Tab 226). The letter stated that, aside from the physical replacement of lead pipes, WASA would undertake a sampling program involving 1,250 customers. (*Id.*). However, it did not note that WASA was required by the LCR to replace more than 1,600 lead service lines during the year, or that the sampling effort was being conducted to allow WASA to count certain of those lines as "replaced," even though they would not be physically replaced. (*Id.*).

In addition, on March 11, 2003, WASA sent a letter from Ms. Lawson to the ANC Commissioners informing them that WASA intended to replace 600 lead service lines and asking them to encourage their constituents to participate in WASA's testing program. (Tab 227). This letter did not describe in any detail the program for testing in lieu of replacement or indicate that this sampling program had been necessitated by the fact that WASA had exceeded the LAL in the most recent monitoring period. (*Id.*). It also did not mention the degree to which WASA had exceeded the LAL. (*Id.*). Instead, it indicated that the program was designed to "identify potential candidates [for replacement] in the future." (*Id.*).

WASA also held a meeting with ANC Commissioners in March 2003, as noted above in Section V.C, to apprise them of WASA's lead service replacement efforts. (Tab 183; Interview of Roger Gans, April 2, 2004; Interview of Curtis Cochrane, March 31, 2004). Mr. Marcotte, Mr. Gans, Mr. Cochrane, Ms. Lawson and Mr. Keily also attended this meeting. (*Id.*). Mr. Marcotte gave a PowerPoint presentation that provided information on the scope of WASA's lead service line replacement program, with a focus on information relevant to homeowners, including replacement and testing processes. (Tab 228). Mr. Gans described this presentation as a straightforward account of the discovery of elevated lead levels and WASA's plan to respond. (Interview of Roger Gans, April 2, 2004). Unfortunately, as noted previously, the meeting, which was held at WASA's Blue Plains facility, attracted only six ANC Commissioners, despite WASA's offer of free transportation and free food. (*Id.*)

Mr. Marcotte had provided the Operations Committee of the WASA Board with a similar update on WASA's LCR-compliance activities on March 20, 2003. (Tab 222; Tab 229). At this time, WASA was still adhering to its plan, outlined in early December 2002, that it would replace 600 lead service lines and replace 1,000 additional lines via testing in lieu of replacement by December 31, 2003. (*Id.*). WASA's presentation to the committee indicated that the cost of this program, as previously estimated, would be approximately $3.7 million. (*Id.*). The meeting minutes and associated PowerPoint presentation indicate that Mr. Marcotte informed the Committee that WASA was undertaking a public outreach effort to inform and involve government officials, ANC Commissioners, and the public about the lead service line replacement effort. (*Id.*).

A former Board member who was present at the meeting, Sherry Conway Appel, said that, in retrospect, Mr. Marcotte's presentation did little to raise awareness among Board members of the health impact of the lead exceedance. (Interview of Sherry Conway Appel, June 15, 2004). She said that she left this meeting with the impression that WASA was not facing an extraordinary situation. (*Id.*). Part of the reason was that the committee had discussed an unrelated issue for hours prior to discussing lead service line replacement, and thus it moved through all remaining issues on the agenda very quickly. (*Id.*). In addition, however, Ms.

Conway Appel recalled that Mr. Marcotte presented the issue as an engineering, not a public health, matter. (*Id.*). She added that she and David Bardin, another WASA Board member, are persistent questioners. (*Id.*). According to Ms. Conway Appel, had the two sensed that a public health issue existed, they would have asked questions about it. (*Id.*). Six days after the Operations Committee met, WASA commenced its program of testing in lieu of replacement. (Tab 230).

According to Ms. Russell, at some point, though likely not at this meeting, Mr. Bardin urged WASA to adopt a long-term program of replacing all of its lead service lines and to consider physically replacing the 1600 lines that had to be replaced in 2003. (Interview of Jodye Russell, April 15, 2004). Ms. Russell told Covington that Mr. Bardin believed that physically replacing lead service lines would be the best course for protecting public health. (*Id.*). Mr. Bardin told Covington that he did not recall making such a plea, but he noted that he was generally skeptical about the merits of testing lines in lieu of replacing them. (Interview of David Bardin, May 12, 2004). Mr. Bardin explained that studies have shown that testing results for a particular lead service line can fluctuate wildly based on a number of relatively unpredictable factors. (*Id.*). While Ms. Russell could not recall a specific Board member who disagreed with Mr. Bardin's suggestion, she believed that opposition to Mr. Bardin's proposal was expressed. (Interview of Jodye Russell, April 15, 2004). As Ms. Russell recalled, after relevant information was shared, WASA employees and Board members engaged in a debate about the merits of replacing lines versus testing lines in lieu of replacement. (*Id.*). In her interview with Covington, Ms. Russell stated that the real question was how to manage the lead concentration of the water, such that it should not matter that a service line was made of lead if it did not impact the level of lead in the water. (*Id.*).

On April 9, 2003, WASA opened bidding for a contract to replace lead service lines known as "the 2003-1 Contract." (Tab 231 at WASA 0000251). After receiving bids, on May 1, 2003, the Operations Committee authorized Mr. Johnson to grant the contract to C&F Construction Co. ("C&F"), the lowest bidder. (Tab 232; Tab 233 at 2). C&F was initially expected to account for approximately 250 of the lead service lines that needed to be replaced in 2003.[104] WASA continued to communicate with DDOT in the spring of 2003 to coordinate additional replacements with planned DDOT projects. In a letter dated April 15, 2003, Mr. Marcotte asked a DDOT official to "reprioritize" a DDOT project that was estimated to generate 20 replacements, but which was not scheduled until 2005. (Tab 235). Mr. Marcotte's letter indicated that WASA was also relying on four other projects, which DDOT staff had identified as being scheduled for 2003, that would together generate 240 replacements. (*Id.*). Ms. Russell, who ultimately became the primary WASA liaison with DDOT, followed up on this letter with

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[104] The D.C. Council had barred C&F from doing business with the city government because its owner had pleaded guilty in 2002 to a scheme to bribe city highway inspectors. (Tab 234). This issue appears to have been discussed at the April 17, 2003 meeting of the Operations Committee of WASA's Board. According to an attachment to the minutes of the meeting, this suspension was later lifted. (Tab 233 at 3).

an e-mail on May 2, 2003 to Tchako Nganduji of DDOT, clarifying that WASA was relying on DDOT to replace 300 lines through a few specific projects. (Tab 236).

Meanwhile, as part of its efforts to line up sufficient volunteers for its testing program, WASA worked with Baker Killam in mid-spring to send a letter to WASA customers encouraging them to have their water tested. (Tab 237; Interview of Elizabeth Lawson, April 22, 2004). In addition, on or around April 28, 2003, WASA began to send letters to certain D.C. homeowners to let them know that their service lines might be replaced as part of the lead service line replacement program. (Tab 238). These letters informed the homeowners that their service lines may be made of lead and stated that WASA would conduct a field test (*Id.*). If the test verified that the service line was made of lead, WASA would replace the public portion of the line at no cost to the homeowner. (*Id.*). The letters also explained to the homeowner that they had the opportunity to have WASA replace the private portion at a cost to them of approximately $2,000. (*Id.*). If the homeowner elected not to replace the private portion, WASA would collect a water sample after conducting the partial replacement. (*Id.*). Notes from a June 11, 2003 meeting at which these letters were discussed indicate that WASA sent these replacement letters to approximately 1,050 customers. (Tab 239). Of these, 273 customers said that they would like to have their portion of the service line replaced, while ten customers declined. (*Id.*). WASA appears to have changed the introductory language in this letter from an earlier draft in fear that the earlier language would unnecessarily "alarm" homeowners. (Tab 240).

WASA made some additional efforts to notify the public of its lead service line replacement program. Like the meeting with ANC Commissioners, these efforts failed to attract much public attention. WASA held two community meetings in May 2003. (Interview of Roger Gans, April 2, 2004; Interview of Elizabeth Lawson, April 22, 2004). On May 14, 2003, WASA held a meeting at Allen Chapel in southeast Washington. (Tab 241). The next night, WASA held a meeting at the People's Congregational Church in northwest Washington. (*Id.*). At these meetings, WASA gave a PowerPoint presentation similar to that given at the ANC Commissioner meeting. (Tab 242). Mr. Gans estimated that six people attended the first meeting, while 15 people attended the second meeting. (Interview of Roger Gans, April 2, 2004). Mr. Gans expressed surprise at the low turnout (*Id.*), though Ms. Lawson recalled advertising for these meetings and contacting ANC Commissioners to encourage attendance. (Interview of Elizabeth Lawson, April 22, 2004).[105] As a result of the light turnout at these meetings, Ms. Russell later recommended that WASA provide more information covering lead service line replacement on its website. (Tab 243).

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[105] In interviews, WASA officials observed that in most of the meetings they held for the public prior to 2004, attendance was sparse. Some suggested that this was because only a minority of District residents are concerned with water-related issues. (Interview of Michael Marcotte, May 25, 2004). Although Covington did not review the promotional materials used for these meetings, in light of public concern registered over the last few months regarding lead issues and the criticism directed towards WASA's public education materials, it is possible that the content and quantity of WASA's promotional materials for public meetings may have contributed to the low attendance.

According to Mr. Gans, despite the fact that WASA had requested that a representative of DoH attend the meetings to provide a public health perspective, none did. (Interview of Roger Gans, April 2, 2004). A May 6, 2003 e-mail from Mr. Cochrane to the DoH confirms that WASA requested the DoH's presence at these two meetings. (Tab 241). Mr. Gans, who attended these meetings, said that he found both crowds more interested in the cost of replacing the private portion of the lead service line than in the public health ramifications of the LAL exceedance. (Interview of Roger Gans, April 2, 2004).

There is some evidence to suggest that the public's focus at these meetings on cost and logistical issues, as opposed to health-related concerns, was a result of the way WASA deliberately presented information at the meetings. According to a May 2, 2003 e-mail from Ms. Russell to Mr. Gans, Ms. Russell felt that "the more detailed information that WASA can be ready to present on the payment aspects and work logistics, the less chance there is that people may focus on the health aspects." (Tab 244). Ms. Russell added, "One can only hope." (*Id.*)

On May 20, 2003, Mr. Marcotte sent Mr. Rizzo of the EPA a letter to update him on WASA's progress on replacing 7% of its lead service lines by "December 31, 2003," the date that most WASA employees believed was the deadline for completion of the program. (Tab 13 at 16; Interview of Leonard Benson, April 1, 2004; Interview of Curtis Cochrane, March 31, 2004). As in earlier WASA communications, Mr. Marcotte's letter stated that WASA's best estimate was that, as of 2002, 22,000 of its services lines were made of lead, though he noted that WASA was currently "working to refine this lead service inventory." (Tab 230). Accordingly, WASA's best estimate was that the number of service lines that it would be required to replace was 1,540. Mr. Marcotte stated that WASA planned to replace approximately 1,600 lead service lines. (*Id.*). To this end, Mr. Marcotte explained, WASA's plan was to test 1,000 lines in lieu of replacement, hire a contractor to replace 250 lines, and replace approximately 350 lead service lines as part of already-planned WASA water main replacement or DDOT road reconstruction projects. (*Id.*).

Mr. Marcotte's letter further stated that WASA was relying on the 1990 Weston Report to identify lead service lines and that it would give replacement priority to the lines that were identified in the Weston Report as possibly having levels of lead over 50 ppb. (*Id.*). For the testing in lieu of replacement, Mr. Marcotte stated that WASA intended to select "a geographically diverse "set of addresses from the 'Unclassified Group.'" (*Id.*). Mr. Marcotte promised to (i) report monthly to EPA on the lead tap results from partial replacements as required by regulation; (ii) provide a report by July 31, 2003 summarizing WASA's efforts to revise its inventory of the location and number of lead service lines and its schedule for replacement of 7% of those lines; and (iii) provide by December 31, 2003 a final report for the 2003 program, including the number of service lines replaced and documentation regarding the service lines sampled, with sample test results that "will demonstrate that these meet the criteria to be considered as replaced." (*Id.*).

With regard to the second assurance, Mr. Marcotte subsequently informed Mr. Rizzo that he would be unable to meet the July 31, 2003 deadline, because "[t]he effort to locate

the appropriate paperwork to document these replacements is underway, and is taking longer than previously estimated." (Tab 245). Mr. Marcotte gave the EPA a final inventory in September 2003, which indicated that WASA had 23,071 lead service lines.[106] (Tab 247 at WAS 0001527). Nevertheless, in a June 27, 2003 letter, Victoria Binetti, the EPA's Associate Director for Municipal Assistance in the Water Protection Division, approved Mr. Marcotte's plan, which Ms. Binetti said "complies with the requirements of the Lead and Copper Rule (LCR)." (Tab 248).

4. Late Spring and Summer 2003: Unexpected Challenges

As discussed above, WASA faced numerous delays throughout 2003 which set back its replacement efforts. In addition to the DDOT moratoriums and WASA's difficulty in obtaining necessary permits, on June 4, 2003 the EPA surprised WASA by announcing that it would not "extend" the deadline for replacing lead service lines to December 31, 2003. (Tab 249). The EPA indicated a new deadline of September 30, 2003 — three months earlier than the deadline for which WASA had planned, although still an extension of the deadline otherwise applicable under the regulation. (*Id.*).[107] According to Mr. Gans, Mr. Rizzo changed the deadline because his superiors "reversed" him. (Tab 252). Ms. Binetti later confirmed the new deadline in her June 27, 2003 letter to WASA. (Tab 13 at 20; Tab 248). According to Ms. Russell, the statutory deadline would have been in August 2003, so this "still represents some flexibility on the part of the EPA." (Tab 249).

There is little doubt that the EPA's change of this deadline, which meant that in June 2003 WASA now had four months, instead of seven, to conclude its lead service line replacement program, had a profound effect on the manner in which WASA carried out that program. Several WASA employees recalled that the news came as a surprise to them. (Interview of Curtis Cochrane, March 31, 2004; Interview of Michael Marcotte, May 25, 2004). From that point on, they focused all of their future efforts on meeting this new deadline. (*Id.*). Witnesses suggested that this focus may have explained the failure of the Engineering & Technical Services Division to be cognizant of other aspects of the program, such as the health consequences of the actual testing results that were coming in.

Because of the deadline change, Ms. Russell asked Ms. O'Malley to expedite DDOT's work with regard to replacements. (*Id.*). Mr. Gans sent a similar e-mail to Mr. Boateng on June 20, 2003. (Tab 252). Despite these efforts, it soon became clear that the shortened deadline was causing WASA "major problems." (*Id.*). Consequently, Mr. Gans said that WASA would not be able to physically replace 600 lines and would have to rely more heavily on testing to make up the difference. (*Id.*).

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106 Later inspections, however, revealed that some pipes that were identified as being made of copper were actually made of lead. (Tab 246).

107 A June 17, 2003 e-mail from Mr. Gans indicates that Mr. Marcotte and Mr. Benson were informed of this new deadline on June 5, 2003. (Tab 250). Mr. Marcotte forwarded this e-mail to Mr. Johnson on June 20, 2003. (Tab 251).

As a result of the change in deadline, on June 13, 2004, Baker Killam proposed an "Accelerated Lead Sampling Program" to meet WASA's obligations under the LCR by September 30. (Tab 250 at 2). In a memorandum to Mr. Gans, Baker Killam indicated that, as of that date, it had obtained 360 samples whose lead levels tested below the LAL. (*Id.*). However, Baker Killam proposed to obtain an additional 1,600 samples that "passed," since a total of 1,960 "passed" samples would be enough to satisfy the LCR if WASA's universe of lead lines were 28,000, as initially represented by the Weston Report. (*Id.* at 4). Baker Killam's memorandum provided a rough outline of a plan to find these additional volunteers, including sending additional letters and offering a $25.00 incentive for customers to have their water tested. (*Id.*; Tab 253). A June 20, 2003 e-mail from Mr. Gans to Mr. Benson indicates that Mr. Johnson approved of the rebate plan. (Tab 254).

At the same time that WASA was facing increased pressure as the result of the change in deadline, it was realizing that DDOT was not replacing as many lines as WASA had hoped. According to Mr. Benson, in or around June 2003, John Deatrick of DDOT told WASA that DDOT would be unable to replace a significant number of lead service lines before the deadline. (Interview of Leonard Benson, April 1, 2004). Ms. Russell opined that this occurred because DDOT did not consider the lead service line replacement program a high priority, since it was not DDOT's responsibility. (Interview of Jodye Russell, April 15, 2004). A June 17, 2003 e-mail from Mr. Gans indicated that DDOT had thus far replaced far fewer lines than WASA had expected and that WASA could "count on few if any physical replacements via this source by September 30, 2003." (Tab 254 at 2). Ms. Russell was even more pessimistic. According to an e-mail on June 12, 2003 to Ms. Lawson, Ms. Russell said, "it now appears that it will be very difficult to do any actual replacements by the end of September." (Tab 255). On top of this, Ms. Russell told Ms. Lawson that the response rate for volunteer testing had been low. (*Id.*).

Consistent with WASA's pessimism regarding the number of physical replacements that would be achieved, a June 26, 2003 strategy paper indicates that WASA believed at this point in time that it would be able to replace only 60 lead service lines and would need to rely on 1,600 lines testing below the LAL. (Tab 256). On July 21, 2003, Mr. Pantuck of the EPA requested additional information from WASA regarding its prioritization process for physical replacement. (Tab 257 at 2). Despite the difficulties that WASA was facing by this time, Mr. Cochrane responded that WASA intended to physically replace "the highest lead service lines, economically, with as much coverage of the entire city as possible." (*Id.* at 1-2). The e-mail also indicated that WASA had identified 14 blocks that contained approximately 250 lead service lines and that would be replaced under DDOT guidelines with a minimum amount of road resurfacing. (*Id.*).

In July 2003, WASA encountered another significant challenge. Up until this point, WASA had been instructing homeowners who had volunteered to have their water tested to collect the sample after running the water for five minutes. (Tab 258). WASA gave homeowners these instructions because this is how WASA instructed customers to take a second draw as part of its routine tap water monitoring program. (*Id.*). However, in July 2003, WASA realized that the EPA regulations state that, for purposes of testing in lieu of replacement, water systems should instead sample water drawn after running the tap long enough to observe a

change in the temperature of the water. (*Id.*; Tab 47 § 141.84(c)). According to Mr. Gans, the EPA instructed WASA to change the instructions it gave D.C. homeowners. (*Id.*)

In early July 2003, WASA did not know whether the EPA would even consider valid the more than 300 lines that had tested below the LAL using the erroneous methodology. (*Id.*). According to Mr. Gans, Ms. Russell favored raising this issue with the EPA immediately, whereas Mr. Cochrane recommended not raising the issue at all. (*Id.*). Mr. Gans took an intermediate position: He recommended that WASA not ask the EPA for advice on this matter, but in the meantime instruct Baker Killam to obtain 1,600 additional "passing" test results, which Baker Killam believed was possible. (*Id.*). Mr. Gans explained that if Baker Killam were unable to find enough lines that tested below the LAL, it would still have more than 300 lines to use as a "buffer." (*Id.*). Mr. Gans stated that, using the change in temperature methodology, WASA ultimately was unable to find enough lines that tested below the LAL to satisfy the LCR. (Interview of Roger Gans, June 23, 2004). As such, in its final report to the EPA, WASA relied on 417 lines that had been tested using the five-minute methodology, counting them as "replaced" lines. (*Id.*; Interview of Jodye Russell, July 12, 2004).

The realization that WASA's testing methodology was flawed set WASA even further back for two reasons. First, it required WASA to essentially start its testing effort from scratch just two and a half months before the deadline would arrive. Second, the testing results WASA began receiving in July and August 2003 using the EPA-required change-in-temperature methodology were far higher than the testing results using WASA's original methodology. According to an attachment to an August 6, 2003 e-mail from Mr. Wujek to Mr. Gans, when WASA used its original five-minute methodology, 66.8 % of the service lines (or 566 of 847 homes) had lead levels below the LAL. (Tab 259). When customers began using the EPA's required methodology, however, this number dropped to 27.5% (with only 163 of 592 homes testing below the LAL). (*Id.*). This attachment also indicates that, as of August 6, WASA had, in total, tested 1,439 samples, 729 of which (50.7%) had tested under the LAL.

With such a low passing rate becoming evident for samples taken using the new methodology, WASA now faced the prospect of needing to test thousands of additional homes in order to obtain the necessary number of "passing" results. This low pass rate came as a surprise to WASA. (Interview of Leonard Benson, April 1, 2004; Interview of Roger Gans, April 2, 2004; Interview of Curtis Cochrane, March 31, 2004). As Mr. Gans said in an August 7, 2003 e-mail to Mr. Benson, WASA's sampling program had taken a "nose dive." (Tab 260).

As a result of all of these unexpected delays and challenges that WASA faced in the summer of 2003, WASA was forced to conduct a significantly greater amount of lead testing — and to find more volunteers — than it originally planned. (Interview of Roger Gans, April 2, 2004). Between June and October 2003, WASA conducted an "[i]ntensive sampling program." (Tab 183). In addition, the number of samples that were being taken overwhelmed the laboratory resources at the Aqueduct, with the result that WASA had to contract with two additional firms to test the lead service line samples. (Interview of Roger Gans, April 2, 2004).

In the beginning of August, Baker Killam discovered a solution to the problem of finding enough lead service lines to test below the LAL. In an August 7, 2003 e-mail, Mr. Gans informed Mr. Benson that Baker Killam had conducted a geographic analysis and found that the

lead service lines with high levels of lead were geographically related. (Tab 260). Specifically, certain neighborhoods in Ward Four had much higher lead concentrations than other neighborhoods. (*Id.*). Consequently, Baker Killam began to avoid these neighborhoods in conducting WASA's lead sampling for testing in lieu of replacement. (*Id.*). Baker Killam told Mr. Gans that it was confident that it could obtain 1,600 "passing" results and still maintain geographic diversity. (*Id.*)

Throughout the summer of 2003, WASA was increasingly focused on complying with the EPA's deadline. (Interview of Leonard Benson, April 1, 2004; Interview of Roger Gans, April 2, 2004; Interview of Jodye Russell, April 15, 2004). In late August, Mr. Benson prepared a memorandum to Mr. Johnson, briefing him on the status of the lead service line replacement program. The memorandum indicates that, at that time, revised estimates indicated that WASA had 24,100 lead service lines, which meant that WASA believed it would need to replace 1,690 lines. (Tab 261). However, Mr. Benson estimated that, prior to the deadline, WASA would be able to locate only 1,229 "passing" lines via testing in lieu of replacement — a number that, adding in the anticipated number of physical replacements, did not equal the needed total of 1,690. (*Id.*). Mr. Benson therefore requested that WASA offer C&F a performance incentive of $2,000 for each lead service line that it replaced in excess of 96, the number that C&F had planned to replace by September 30, 2003. (*Id.;* Interview of Jodye Russell, April 15, 2004). Mr. Benson said that the goal for C&F would be to complete 250 replacements and that C&F would not be paid unless it met this goal. (Tab 261). Mr. Benson also requested a similar performance incentive for Fort Myer Construction, which was replacing lines under an Infrastructure Repair & Replacement Contract. (*Id.*). According to Ms. Russell, C&F worked "around the clock," ultimately replacing 304 lead service lines. (Interview of Jodye Russell, April 15, 2004). This amounts to 79 % of all lead service lines that WASA physically replaced by September 30, 2003 (Tab 262) — a considerable increase over the 42% that WASA had previously planned for C&F to replace. (Tab 231 at WASA 0000251; Interview of Jodye Russell, April 15, 2004).[108]

As is noted above, the Engineering & Technical Services Division informed some WASA executives during the late summer of 2003 of the general progress of the sampling effort and of the fact that they were having difficulty in collecting their projected number of "passing" samples. Mr. Benson and Mr. Gans told Covington that they believed that Mr. Marcotte was generally aware throughout the summer of 2003 that more samples were coming in above the LAL than they had anticipated. (Interview of Roger Gans, April 2, 2004). Mr. Marcotte confirmed that by the end of the Summer, he was in constant contact with the Engineering & Technical Services Division, meeting weekly with Ms. Russell to receive updates on the progress that had been made in attempting to meet the EPA's deadline. (Interview of Michael Marcotte, May 25, 2004). As noted above, Mr. Johnson had also generally been informed by this time that WASA was not receiving the number of "passing" sampling results it had expected, and that, as result, it needed to significantly increase the size of its sampling pool. (Tab 261; Interview of

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[108] Additionally, as both testing and replacement activity increased in the late summer of 2003, WASA created a hotline to answer customer questions and complaints. (Tab 263).

Jerry Johnson, May 19, 2004).[109] The Operations Committee of the Board may also have been advised that more samples would be taken during this time, though they may not have been aware that the number of samples was in the thousands, as opposed to the hundreds. (Tab 134).

However, the Engineering & Technical Services Division did not provide much, if any information regarding the testing process or the nature of the sampling results that were coming in to those employees who would be most focused on water quality issues — Mr. Giani, the Water Quality Manager, or his supervisor, Mr. Boateng. (Interview of Roger Gans, April 2, 2004). Mr. Giani said that he did not even know that WASA was testing in lieu of replacement, much less have an awareness of the results of that testing, until December 2003. (Interview of Richard Giani, March 31, 2004). Likewise, Mr. Boateng says that he did not learn of the results until January 2004, when they were published in *The Washington Post.* (Interview of Kofi Boateng, April 7, 2004).

Moreover, the Engineering & Technical Services Division did not collect and analyze the sampling results as a whole, as they came in during the late summer and early Fall. Therefore, even WASA executives like Mr. Johnson and Mr. Marcotte — who were aware during the summer that WASA was being required to test more homes than it had planned to, due to a lack of sufficient results under the LAL — were not provided with a listing of those results, or the lead levels associated with them, until December 2003 or January 2004. (Interview of Michael Marcotte, May 25, 2004; Interview of Jerry Johnson, May 19, 2004). Likewise, the EPA stated that, although WASA periodically notified it during the summer of the number of lead service lines that were being tested under the LAL, WASA did not communicate either the number of such lines testing above the LAL or the specific test results for any of those lines. (Tab 13 at 19).[110] At the same time, it should be noted that neither of these executives or the EPA appears to have requested this information at the time.

Mr. Gans explained that his division did not share the results of this testing with the Water Services Division, review the results in aggregate fashion, or analyze them from a water quality perspective, because the division was so focused on meeting the EPA's new September 30 deadline. (Interview of Roger Gans, April 2, 2004). Mr. Marcotte also admitted that, at the end of 2003, WASA was so heavily engaged in determining how many lead service lines it "cleared," that it did not focus on the content of the sampling results as a whole. (Interview of Michael Marcotte, May 25, 2004). Indeed, according to a February 2, 2004 e-mail, neither Mr. Gans nor Ms. Russell was presented with the results of the testing in an organized

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[109] In addition, Ms. Lawson said that, at this time, she too was aware that WASA was sending out more letters to potential sampling volunteers than it had expected to, although she did not know that this was due to the fact that WASA was not receiving the expected amount of "passing" results. (Interview of Elizabeth Lawson, April 22, 2004). Ms. Lawson was under the impression that the increased amount of letters was necessitated by the fact that a sufficient number of volunteers were not agreeing to participate in the sampling program. (*Id.*).

[110] According to the EPA, it did not learn of these results until WASA submitted its lead service line replacement report in October 2003. (Tab 13 at 19).

fashion until the end of 2003. (Tab 264). In retrospect, Mr. Gans and Mr. Marcotte acknowledged that this failure to analyze the data earlier was a mistake. (Interview of Roger Gans, April 2, 2004; Interview of Michael Marcotte, May 25, 2004).

According to a series of e-mails in late August 2003, WASA was also conducting follow-up tests of lead service lines that had been partially replaced. (Tab 265). WASA was expecting that the lead levels in the post-replacement sample of a partially replaced line would be high because the construction activity tends to "shake loose" some of the lead particles in the service line. (*Id.*). On November 11, 2003, Mr. Marcotte wrote a letter to Mr. Rizzo to update him on the post-partial replacement test results that were received in October 2003. (Tab 266). Mr. Marcotte's letter indicated that WASA had, at that time, only received the results of 104 of 427 tests. (*Id.*)

The EPA later asserted that WASA had failed to conduct appropriate post-replacement tests at many of the locations where partial replacements had been done. (Tab 49 at 9). Specifically, the EPA alleged that while WASA sent testing kits to the homeowners, it failed to follow up sufficiently with the customers who did not return their water samples. (*Id.* at 8-9). According to Mr. Gans and Mr. Cochrane, Baker Killam conducted the post-partial lead service line replacement testing. (Interview of Roger Gans, June 23, 2004; Interview of Curtis Cochrane, June 23, 2004). Mr. Gans and Mr. Cochrane said that Baker Killam mailed home test kits to every household whose lead service line was partially replaced within 72 hours of the replacement. (*Id.*). However, many homeowners mailed their water samples back late or failed to mail them back at all. (Interview of Curtis Cochrane, June 23, 2004). As WASA's testing system relied on homeowner cooperation, however, WASA ultimately did not receive testing results from many of the homes whose lead service lines were partially replaced. (*Id.*). Mr. Cochrane discussed the difficulties that WASA was facing in this regard with Mr. Rizzo in late summer 2003. According to Mr. Cochrane, Mr. Rizzo said that WASA should just use its best efforts to ensure compliance. (*Id.*).

Mr. Cochrane said that WASA did not receive results from this follow-up testing until October, so its first notification to the EPA was in November 2003. (*Id.*). WASA also notified all but approximately 20 homeowners of their results within three business days of receiving them. (Interview of Curtis Cochrane, June 23, 2004). Mr. Cochrane explained that due to an administrative error, Baker Killam had failed to send out these 20 letters on time. (*Id.*). WASA had delayed the release of these letters because it did not approve of the original wording in them. (*Id.*). WASA later sent out a revised letter. However, as a result, some homeowners received the results of their post-partial lead service line replacement testing more than three business days after WASA received the results.

A September 17, 2003 e-mail from Ms. Russell to Mr. Gans and others indicates that much of the testing in lieu of replacement still remained to be done as late as the middle of September. (Tab 267). In this e-mail, Ms. Russell said that Baker Killam was preparing to send out testing kits to 4,700 additional residents. (*Id.*). Although Baker Killam suggested reducing this number because a combination of follow-up phone calls and the introduction of a $50 rebate had been increasing the response rate, Ms. Russell recommended that WASA continue to run as many tests as possible to compensate for the other difficulties it faced. (*Id.*). The large number of late tests was not the only emergency measure that WASA took. On September 25, 2003, Mr.

Marcotte asked the D.C. permitting agency for approval to allow C&F to work on Sunday, September 28, 2003. (Tab 268). According to Mr. Marcotte, WASA had been "on target" until a recent hurricane and flood set back its efforts. (*Id.*)

5. Fall 2003: Final Numbers

According to an e-mail from Mr. Rizzo to Mr. Rogers, on September 26, 2003, Mr. Cochrane left a voice mail with Mr. Rizzo to inform him that WASA had tested 1,019 lead service lines and found them to be below the LAL. (Tab 269). The e-mail also indicates that Mr. Cochrane said that WASA had physically replaced 271 lead service lines and that it would be working over the weekend to meet the 7% replacement requirement by September 30, 2003. (*Id.*). In a letter to Rep. Tom Davis, EPA Region III Administrator Welsh indicated that WASA had given the EPA a "preliminary" report of its progress on September 30, 2003. (Tab 126 at 1-6).[111] It is not clear whether Mr. Welsh was referring to the voicemail left by Mr. Cochrane on September 26, or a subsequent communication.

The EPA has recently indicated that WASA's report to the EPA regarding its lead service line replacement was due on September 30, 2003. While the final report that WASA submitted was dated "September 2003," the EPA claims that WASA did not officially inform the EPA of its results until October 27, 2003. (*Id.*; Tab 13 at 16). Mr. Marcotte told the Operations Committee of WASA Board that the effort had been completed by September 30, 2003. (Tab 270 at WAS 0002233). A later October 8, 2003 WASA e-mail indicates that, based on sampling results received "that morning," WASA had found 1,255 lead service lines that were below the LAL. Combining these lines with 384 lines that were listed as being physically replaced as of that date, WASA had replaced more than the 1,615 service lines it had been required to replace. (Tab 271 at 2). However, the e-mail notes that only 819 of the sampling results testing below the LAL had been collected using the EPA's required change-of-temperature methodology. (*Id.*). Therefore, to the extent that WASA had met the EPA's deadline for replacement of 1,615 lead service lines, WASA had done so based on the use of samples collected using both types of second-draw sampling methodologies. (*Id.*). Nevertheless, a November 11, 2003 e-mail from Ms. Russell to a number of WASA employees indicates that Mr. Rizzo had just informed her that the EPA had reviewed WASA's lead service line replacement effort and found it to be in "full compliance." (Tab 272).

According to WASA's final September 2003 report regarding the lead service line replacement program, WASA physically replaced 385 lead service lines and considered 1,241 "replaced" because their lead test results were below the LAL. (Tab 262 at WAS 0001412). Of the 385 lead service lines that were physically replaced, 306 were partial replacements, and 79 were full replacements. Thus, WASA indicated that the total number of lead service lines replaced for the purposes of the LCR were 1,626. Of the 385 lead service lines actually replaced,

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[111] As noted earlier, the EPA has acknowledged that WASA provided it with updates on the progress of the program, through written correspondence and telephone conversations, prior to September 30, 2003. (Tab 13 at 16).

WASA's report indicates that 304 were replaced by C&F pursuant to the 2003-1 Contract;[112] 67 were replaced directly by the Department of Water Services; 11 were replaced by DDOT; and three were replaced by WASA pursuant to other capital improvement projects. (*Id.*). As is discussed more fully in Section V.E, the Engineering & Technical Services Division and Baker Killam did not analyze the total number of samples taken, the number of samples that had exceeded the LAL, or the individual lead level results of that testing, until December 2003. (Interview of Roger Gans, April 2, 2004). They did not provide that information to some WASA executives, including some of those in the Water Services Division, until December 2003 or January 2004. (Interview of Jerry Johnson, May 19, 2004; Interview of Michael Marcotte, May 25, 2004; Interview of Elizabeth Lawson, April 22, 2004; Interview of Kofi Boateng, April 7, 2004; Interview of Richard Giani, March 31, 2004).

6. Analysis

a) Lead Service Line Replacement

As discussed above, once the lead concentrations in D.C. drinking water exceeded the LAL, the LCR placed several requirements on WASA. First, it required WASA to identify the number of lead service lines in its water system. (Tab 47 § 141.84(b)). Second, it required WASA to demonstrate in writing to the EPA within twelve months of the exceedance that it had conducted a materials evaluation to identify the number of lead service lines and communicate its schedule for replacing 7% of its lead service lines. (Tab 47 § 141.90(e)(1)). Third, it required WASA to replace 7% of these lead service lines within twelve months of the exceedance, although it allowed WASA to treat any lead service line for which all properly conducted tests showed that the lead level was below 15 ppb as a "replaced" lead service line. (Tab 47 §§ 141.84(b); 141.84(c); 141.90(e)(2)(ii); n. 100). Fourth, it required WASA to demonstrate in writing to the EPA within twelve months of the exceedance that it had replaced 7% of its lead service lines, either by actual replacement or by testing in lieu of replacement. (Tab 47 §§ 141.90(e)(2); 141.90(e)(3)).

WASA appears to have complied with the first requirement. As discussed above, in the fall of 2002, WASA, through Baker Killam, took an inventory of WASA's lead service lines, using the Weston Report. WASA also conducted a quality check of this 1990 report by comparing it to handwritten cards and notes collected over many years. (Interview of Jodye Russell, April 15, 2004).

WASA appears to have complied with the second requirement by notifying the EPA of the number of WASA's lead service lines, as well as WASA's schedule to replace 7% of these lines, in a letter dated May 20, 2003. (Tab 230). WASA later updated its estimated number of lead service lines on September 30, 2003. (Tab 247). As discussed above, the EPA, after initially giving WASA a deadline of December 31, 2003, later indicated that the deadline

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[112] In speaking with Covington, Mr. Hawthorne alleged that many of the lead service line replacements that were credited to C&F were actually replaced by WASA employees. (Interview of Christopher Hawthorne, May 21, 2004),

for replacing lead service lines was September 30, 2003. (Tab 13 at 20). Presumably, this new September 30 deadline also applied to WASA's reporting requirements. If so, then WASA's written demonstration of its lead service line inventory and its schedule to replace 7% of lead service lines were given within the necessary deadline. If the EPA's September 30, 2003 deadline did not apply to WASA's reporting requirements, WASA still may have complied with this requirement. The regulations provide that this written demonstration must be given "[w]ithin 12 months after a system exceeds the lead action level in sampling." (Tab 47 §§ 141.90(e)(2); 141.90(e)(3)). This language is vague, because it is not clear on what date a system exceeds the LAL. If it is the date on which the monitoring period ended (June 30, 2002) or the date on which WASA informed the EPA of the exceedance (August 26, 2002), then the initial letter was timely.

With regard to the third requirement, WASA appears to have "replaced" more than 7% (1,626) of its lead service lines (23,071), albeit with a very heavy reliance on testing in lieu of replacement. It is not clear when WASA actually finished the efforts that were required by September 30, 2003. WASA employees have stated that WASA met this deadline, though the EPA has concluded that WASA violated this requirement. (Tab 49 at 17). One explanation may be that WASA had conducted all the replacements and tests by September 30, 2003, but not yet received the results of some of the tests.

If it is the case that WASA failed to replace or test in lieu of replace 7% of its lines by September 30, 2003, the factors contributing to this problem include confusion and disorganization. WASA's lead service line replacement effort suffered from a number of internal delays that likely could have been avoided with better planning. For example, by late 2002, Baker Killam warned Mr. Gans that WASA was already behind schedule and that Mr. Johnson needed to approve certain notification letters before lead testing and replacement could begin. (Tab 220). These letters did not go out until February and March 2003, and testing in lieu of replacement did not begin until March 26, 2003 — seven months after WASA first informed the EPA of the exceedance.

However, some of the blame must lie with the EPA, as well. By the EPA's own admission, it initially communicated to WASA a deadline of December 31, 2003. (Tab 13 at 20). Then, at some point, likely early June 2003, the EPA informed WASA by telephone that it had conducted "further review" of the regulations and determined that the deadline was actually September 30, 2003. (*Id.;* Tab 249). To be sure, even this deadline represented an extension from the regulatory deadline of one year from "the date the action level was exceeded." (Tab 47 § 141.84(b)). Again, it is unclear from the language of the regulation exactly when a system's drinking is considered to have exceeded the LAL. In WASA's case, this date is unlikely to have been after August 26, 2002, when WASA sent the EPA the results of WASA's 2001-2002 lead monitoring period. Indeed, Ms. Russell appears to have believed that the statutory deadline was August 2003. (Tab 249). Nevertheless, as many WASA employees expressed, the EPA's late change in the deadline presented a major challenge to WASA. (Tab 252). Among its many consequences was a heavier than expected emphasis on testing in lieu of replacement. (*Id.*). In addition, if Ms. Russell's November 11, 2003 e-mail is to be believed, it is unclear why Mr. Rizzo, who at this point would have realized that WASA missed the deadline, would have indicated that the EPA found WASA to be in compliance with the LCR. (Tab 272).

In addition to WASA's potential violation of 40 C.F.R. § 141.84(b) by failing to meet the September 30, 2003 deadline, WASA may have violated this section by relying on a number of lead service line tests that did not use the methodology prescribed in the regulations. Although the EPA does not appear to have addressed this issue, 40 C.F.R. § 141.84(c) provides that water systems to consider a lead service line "replaced" if it tests below the LAL and the test was taken pursuant to 40 C.F.R. § 141.86(b)(3). 40 C.F.R. § 141.86(b)(3) provides three alternative methods for sampling water, the most practical of which is the change in temperature method. However, as discussed above, 417 of the 1,241 lines that tested below the action level had a second-draw sample taken five minutes after the first draw, as opposed to after the temperature of the water changed. (Interview of Roger Gans, June 23, 2004; Interview of Jodye Russell, July 12, 2004). Waiting five minutes to take a second draw is not a methodology provided for in 40 C.F.R. § 141.86(b)(3), and thus it is not clear whether the samples taken via this method count for the purposes of 40 C.F.R. § 141.84.

Finally, WASA appears to have violated the fourth requirement, as well, for reasons similar to those discussed above. While this is another instance of a vague deadline, the date on which the EPA claims it received written demonstration that WASA had replaced 7% of its lead service lines, October 27, 2003, was after any likely regulatory deadline as well as the EPA's September 30, 2003 deadline. (Tab 126 at 4).

b) Partial Lead Service Line Replacement

In addition to the four requirements discussed above, the LCR imposes several requirements on water systems that, in their effort to replace 7% of their lead service lines, only replace the portion of lines that they own (the "public portion"). In this regard, the LCR first requires a water system to notify homeowners that it is going to replace the public portion of the line and offer to replace the private portion at the homeowner's expense. (Tab 47 § 141.84(d)). Second, 45 days prior to replacing the line, the system must notify all residents of a building served by the line that they may experience a temporary increase in lead levels and give guidance on how to minimize exposure to lead. (Tab 47 § 141.84(d)(1)). Third, the water system must inform residents that it will, at its expense, collect a water sample of a partially replaced line within 72 hours of the replacement. *Id.* Fourth, the water system must report to the homeowner the results of this sampling within three business days of receiving the results. Fifth and finally, the system must report to the EPA all of the post-partial lead service line replacement testing results within the first ten days of every month that it has received such results. (Tab 47 § 141.90(e)(4)).

WASA appears to have complied with the first and second requirements. As discussed above, in April 2003, WASA sent letters to certain homeowners whose service lines WASA considered replacing. (Tab 238). These letters appear to have contained all of the requirements for such letters identified above, with one exception: while they inform homeowners that WASA would be sampling any partially replaced line, they do not give a 72 hour time period for the sampling. (*Id.*).

The EPA contends that WASA violated third requirement because it did not conduct post-replacement tests within 72 hours of partially replacing a lead service line. (Tab 49 at 9). Both Mr. Gans and Mr. Cochrane told Covington that WASA sent a testing kit to each of

the 309 homes whose lead service lines were partially replaced as of September 30, 2003 within 72 hours of the replacement. (Interview of Roger Gans, June 23, 2004; Interview of Curtis Cochrane, June 23, 2004). However, according to the EPA, while WASA provided post-partial line testing samples for 147 homes, it failed to follow up with the numerous homeowners who did not timely return their testing kits. (*Id.*). While this may be a technical violation of 40 C.F.R. § 141.84(d), it seems less egregious than had WASA altogether failed to conduct any post-partial lead service line replacement testing. It is also unclear what further steps WASA, who relies on homeowner cooperation to conduct these tests, could have taken to secure timely test results from uncooperative homeowners. Moreover, according to multiple WASA employees, Mr. Rizzo was aware by late summer 2003 that WASA was having difficulties in securing homeowner cooperation in the testing and told WASA to use its best efforts to do so. (Interview of Roger Gans, June 23, 2004; Interview of Curtis Cochrane, June 23, 2004). Thus, while WASA may have violated this regulatory provision, there was little it could have done differently in the process

WASA also appears to have violated the fourth requirement, which requires water systems to report to homeowners the results of post-partial lead service line replacement testing within three business days of receiving the results. According to Mr. Cochrane, WASA failed to comply with this provision with respect to approximately 20 homes whose notification letters were among those that WASA withheld for redrafting. (Interview of Curtis Cochrane, June 23, 2004). These 20 homes, therefore, were informed of their results more than three business days after WASA received them. (*Id.*).

Finally, WASA appears to have at least initially complied with the fifth requirement. In a letter dated November 10, 2003, Mr. Marcotte informed the EPA of the results of 104 post-partial lead service line replacement tests. (Tab 266). This letter appears to have been timely because, according to Mr. Cochrane, WASA first got the results of this testing in October 2003. (Interview of Curtis Cochrane, June 23, 2004). The EPA has stated that WASA ultimately gave it results from 147 partially replaced lines. It is unclear when WASA received the 43 results that were not reported in the November 10, 2003 letter and when WASA reported these results to the EPA.

E. The 2003 Lead Monitoring Periods

1. Lead Monitoring and Results for the January 1, 2003 to June 30, 2003 Monitoring Period

Once the lead monitoring results for the 2001-2002 monitoring period exceeded the LAL, WASA was required to alter both the length of the monitoring period in which it collected samples and the number of samples it collected. As explained in Section V.A, prior to the 2001-2002 monitoring period, WASA had qualified for a reduced lead monitoring schedule, requiring 50 samples taken annually, because it had undergone several consecutive monitoring periods in which it had not exceeded the LAL. Once lead concentrations exceeded the LAL in the 2001-2002 monitoring period, however, WASA had to return to a normal lead monitoring schedule of 100 samples taken every six months.

This requirement was communicated to WASA by the EPA in a November 2002 summary memorandum. As explained in the memorandum, to ensure continued compliance with the LCR, WASA was required to "[r]esume full monitoring for lead and copper at customers' taps. DC WASA will begin sampling at a minimum of 100 customer taps during two 6-month monitoring periods in 2003 (January 1 to June 30 and July 1 to December 31)." (Tab 273 at 2).[113]

There is some dispute regarding discussions that were held at WASA with respect to the approach to the 2003 monitoring period. In hearing testimony, Ms. Bhat contended that Mr. Boateng had requested that she exclude volunteers from participation in the tap water sampling program when those volunteers had historically high lead levels. (Tab 274 at 379-80, 382-83). In his deposition testimony, Mr. Boateng disputes this characterization of this discussion with Ms. Bhat, explaining that he had only requested information regarding the selection criteria the EPA had established for picking new volunteers when former volunteers decided to no longer participate, or when new volunteers otherwise had to be added to the pool. (Tab 275 at 557-60). At trial, Mr. Boateng recalled discussing the possibility of increasing the sampling size for the next lead monitoring period by identifying previous volunteers who had left the program because of decreased lead concentrations in their water. (Tab 109 at 1199-1201). The documentary evidence reviewed by Covington is consistent with either account. For instance, a December 18, 2002 e-mail from Ms. Bhat to Mr. Boateng does indicate that she had asked George Rizzo of the EPA whether volunteers with historically high lead levels could be dropped from the sampling plan when their lead service lines were scheduled to be replaced, and states that she had learned that they could not do so. (Tab 276 at 1). The question raised in the e-mail suggests that the issue of dropping volunteers with high lead levels had arisen, but differs in some ways from Ms. Bhat's allegations, and does not resolve whether the issue arose at Mr. Boateng's instigation.

The development of the 2003 sampling plan is discussed in several e-mails. These e-mails acknowledge that WASA's sampling plan must be approved by the EPA, but also expressly recognize that one consideration in developing the plan is to minimize the likelihood of exceeding the LAL. For instance, Roger Gans e-mailed Mr. Boateng on December 12, 2002, to suggest that the Engineering & Technical Services Division and Baker Killam review the sampling plan developed by Ms. Bhat "to see if there is any way we can see to improve our chances of having the sampling results fall below the action level." (Tab 276 at 2-3). In an e-mail sent in response to Mr. Gans's e-mail, Ms. Bhat indicates that she is including new volunteers in the plan in part because that might "improve our chances of being below the action level." (*Id.* at 2). Likewise, in a December 12, 2002 e-mail, Curtis Cochrane suggested using

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[113] At one point in early 2004, the EPA indicated to WASA officials that it believed that the fact that WASA did not begin the transition to this six-month monitoring period until January 2003 (as opposed to beginning a new monitoring period immediately after the 2001-2002 monitoring period ended on June 30, 2002) amounted to a violation of the LCR. (Interview of Michael Marcotte, May 25, 2004). However, the EPA apparently has now abandoned that claim after being directed to evidence that it had sanctioned WASA's monitoring timetable in this regard. (*Id.*)

volunteers whose results had tested low in the lead replacement program testing to replace locations in the sampling pool that are removed because the volunteer's lead service line was replaced. (*Id.* at 2).

On January 21, 2003, Ms. Bhat forwarded a proposed list of sampling volunteers for the 2003 lead monitoring period to Mr. Boateng. (Tab 277). In her accompanying e-mail, she noted that of the 100 volunteers, 28 had historically high lead levels in prior testing. (*Id.*). Accordingly, she predicted that, although differing conditions might affect the results, it was "improbable" that WASA would be under the LAL using this volunteer group (*i.e.*, have less than 10 samples testing above the LAL). (*Id.*). The following day Ms. Bhat e-mailed the list of volunteers to Mr. Rizzo and requested the EPA's approval of the list as soon as possible. (Tab 278). Mr. Rizzo responded within the hour and indicated that the list of sample sites was acceptable. (Tab 279). While the EPA has subsequently raised questions regarding how the sampling pool was selected, Mr. Rizzo's e-mail did not raise this issue.

Between January 1, 2003 and June 30, 2003, WASA collected samples from 104 sites and analyzed the both the first-draw and the second-draw samples from those sites. (Tab 280). As early as January 21, 2003, Ms. Bhat predicted in an e-mail to Mr. Boateng that the lead concentrations would once again exceed the LAL. (Tab 277). It does not appear that this information was conveyed at the time to Mr. Marcotte. (Interview of Michael Marcotte, May 25, 2004). In an interview, Mr. Marcotte noted that WASA was still operating from the premise that its exceedance of the LAL in the 2001-2002 monitoring period was a fluke, likely due to the fact that only a small number of samples had been tested in that monitoring period. (*Id.*). He acknowledged that, had he inquired about and focused on the additional elevated lead levels that were received from the Aqueduct in the first half of 2003, it might have alerted WASA sooner to the fact that the 2001-2002 monitoring results were not a fluke, but were symptomatic of a larger problem with the content of lead in the water supply. (*Id.*).

During the early part of this monitoring period, on January 30, 2003, WASA management informed Ms. Bhat that she would be terminated. The following day she was placed on administrative leave, and her termination was subsequently finalized. The issue of whether Ms. Bhat's termination was appropriate is outside the scope of Covington's investigation and is the subject of ongoing litigation. Accordingly, this report will not address the substantive issues relating to Ms. Bhat's termination, to the extent that they do not relate to WASA's lead monitoring activity. Following her termination, Ms. Bhat sent a letter to Mr. Rizzo expressing a concern that WASA's management was "insensitive to drinking water quality programs and related public health issues." (Tab 281 at 1).

However, Ms. Bhat's departure not only meant that a vacancy existed in the Water Quality Manager position, but also that the Aqueduct would need to transmit lead monitoring results to another WASA employee. Silas Obasi, a technician in the Water Quality Division who worked for Ms. Bhat, took on this role. (Interview of Silas Obasi, April 20, 2004). When he received these results, Mr. Obasi did not forward them on to Mr. Boateng on a rolling basis, but instead waited until the end of the monitoring period, in late June or early July 2003, to do so. (*Id.*). Mr. Obasi did say, however, that he kept Mr. Boateng verbally informed of the results during the testing period and that Mr. Boateng was interested in the results. (*Id.*). For his

part, Mr. Boateng recalls that he and Mr. Obasi had open communication on this point during the monitoring period. (Interview of Kofi Boateng, April 7, 2004).

By April 2, 2003, 14 of the 52 samples that had been tested exceeded the LAL. (Tab 280, Attachment at 1-2). Since WASA was scheduled to collect 100 samples in the monitoring period, the fact that there had been more than ten samples with lead concentration in excess of the LAL indicated that the 90th percentile for the entire sampling group in the period would exceed the LAL. Results showing 16 total samples testing over the LAL were received by Mr. Boateng from the Aqueduct on April 10, 2003. (Tab 282).

For the entire January 1, 2003 to June 30, 2003 monitoring period, lead concentrations in 27 of the 104 first-draw results exceeded the LAL. (Tab 280, Attachment at 1-3). The 90th percentile sample from both the first-draw and second-draw had lead concentrations in excess of the LAL — the lead concentrations for the two draws were 40 ppb and 21 ppb respectively. (Tab 280). On July 29, 2003, Mr. Marcotte wrote to Mr. Rizzo of the EPA and informed him of the results from the sampling in the first half of 2003. (*Id.*; Tab 13 at 25). The EPA has recently charged that this report did not adequately identify the criteria on which the sample locations included in the report were selected, or indicate which locations had not been sampled during earlier monitoring periods. While this information is not included in Mr. Marcotte's letter, the EPA raised no such concerns at the time of the receipt of that letter. The EPA has also noted that although it had no record of any preliminary reports about the exceedance prior to the July 29 letter, the exceedance was not a surprise, as WASA had previously informed EPA that it was planning to continue its lead service line replacement program in 2004. (Tab 13 at 25).

2. Public Education Efforts

Because WASA's lead monitoring results for the first half of 2003 exceeded the LAL, the LCR required WASA to continue its public education efforts. After lead concentrations exceeded the LAL for the January 1, 2003 to June 30, 2003 monitoring period, WASA distributed a version of its *What's On Tap* newsletter, which included information regarding lead in the drinking water, along with its monthly water bills in August 2003. (Tab 283). The information regarding lead in the drinking water began on the second page of the newsletter, and included a statement that the EPA and WASA are "concerned" about the issue of lead in the water supply, and that "[a]lthough most homes have very low levels of lead in their drinking water, some homes in the community have lead levels above the EPA action level of 15 parts per billion (ppb). . . ." (*Id.*). The newsletter includes approximately two-and-one-half pages discussing lead in the drinking water, the content of which largely mirrors language contained in the LCR. Drafts for the newsletter included a statement in the first paragraph that WASA was required under federal law "to have a program in place to minimize lead in your drinking water." (Tab 284). This statement was removed from the final version of the newsletter.

In September 2003, WASA also prepared a tri-fold brochure entitled *An Information Guide on Lead in the Drinking Water*. (Tab 285). On September 30, 2003, WASA provided this brochure to public sector agencies for distribution. (Tab 286). Ms. Lawson, WASA's Public Affairs Director at the time, recalled that the DoH did not assist in the creation of this brochure; as a result, the brochure focused far more specifically on the issue of lead in the

water than had the *Living Lead Free in D.C.* brochure, and was more concise as a result. (Interview of Elizabeth Lawson, April 22, 2004). Ms. Lawson also recalled that the brochure was well received and that members of the Board indicated to her that they were pleased with it. (*Id.*). The language in the *Information Guide* largely reflects the language required by the LCR. This brochure was also prepared in Spanish.

The EPA has indicated that Mr. Rizzo contacted WASA in August or September 2003 to inquire about WASA's public education activities and that he spoke with Ms. Lawson, who said that the brochure had been sent out to customers in August 2003. (Tab 13 at 26). The EPA said that it did not see a copy of any of WASA's public education materials for the period prior to their distribution. (*Id.*).

The LCR requires that a utility whose lead concentrations exceed the LAL must include an alert in large print on the water bill itself. It appears that WASA materially complied with this requirement as well in August 2003, including a statement on water bills stating: "WASA's water quality improvement programs include sampling for lead in the drinking water. Some homes in our community have elevated lead levels. Lead can pose a risk to your health. Please read the enclosed newsletter for important information." (Tab 286 at 5 at Exhibit A-2). While this language was not capitalized as it appears in the regulation, the text was included in a highlighted color text box. The language in the bill differs from the language proposed in the LCR in one notable respect — the language proposed in the LCR states that lead can pose a "*significant*" risk to your health.

As previously noted, the LCR requires that a utility whose lead concentrations exceed the LAL must make certain efforts to reach customers through the media. For instance, it requires that language similar to the alert printed on the water bill be distributed to the editorial departments of local daily and weekly newspapers and that the utility distribute a public service announcement every six months. It is not clear whether WASA distributed the required language to newspaper editorial departments, although WASA did place advertisements in local newspapers that indicated that "some homes in the community have lead levels above the EPA action level." (Tab 287). The language in this advertisement differed in some respects from the language suggested for the bill alert, which included a statement that lead can pose a significant risk to your health.

WASA distributed a public service announcement to five local television stations and fourteen local radio stations on September 29, 2003. (Tab 288). The public service announcement stated that "[p]lumbing components in your home can contribute lead to your drinking water." However, the content of the announcement does not include LCR-suggested language that "unhealthy amounts of lead can enter drinking water." In a September 29, 2003 e-mail circulating drafts for both the public service announcement and the advertisement, Linda Bernhardt of Baker Killam indicated that "Libby [Lawson]'s goal is to inform the public, not alert them, or spur a flurry of calls from reporters." (Tab 289). This goal is consistent with the concern expressed by present and former WASA employees in interviews, in which they said that WASA based decisions about the content of such materials on a desire to avoid "alarming" the public regarding the exceedance.

However, as the year went on and the number of homes participating in WASA's lead service line replacement program increased, WASA made some attempts to work with local media outlets regarding the generation of news stories about WASA's past exceedance of the LAL, specifically with regard to the ongoing efforts WASA was making to replace lead service lines. In an interview, Ms. Lawson said that she talked with reporters at *The Washington Post* and *The Washington Times* in the fall of 2003 regarding the lead service line replacement process. (Interview of Elizabeth Lawson, April 22, 2004). Ms. Lawson also worked with a local television news reporter to provide information on the replacement process, an issue that had piqued the reporter's interest because his station had received some calls from residents on the subject. Although Ms. Lawson thought that each of these contacts could have lead to news reports, ultimately no such reports were produced. (*Id.*).

Finally, according to Jodye Russell, WASA's Director of Planning, WASA made at least three presentations during the fall of 2003 to community groups with questions related to elevated lead readings. Ms. Russell and other WASA employees made PowerPoint presentations to the Burlieth Citizens Association at the Washington International School on November 12, 2003; to the Monroe St. Association at St. Stephan's Church on December 12, 2003; and to "Moms on the Hill" at the home of a member on December 16, 2003. The PowerPoint presentation used at the meetings indicates that participants were told that, in 2002 and 2003 "some" homes in the community tested above the LAL for lead. The presentation also contain some discussion of the health effects of lead. For her part, Ms. Russell indicated that these meetings included frank discussion of the lead issue and on lead's health effects. (Interview of Jodye Russell, April 15, 2004). In addition, as discussed below, WASA held further public meetings in connection with the lead service line replacement program at which lead issues were discussed.

3. Lead Service Line Replacement Program

Because lead concentrations in the water continued to exceed the LAL during the 2003 monitoring period, the LCR required WASA to continue the lead service replacement program and to replace 7% of the lead service lines remaining in the system for the 2003-2004 year. In WASA's FY2003-FY2012 Capital Improvement Program, published on October 16, 2003, WASA outlined a plan to physically replace 600 lead service lines and to identify 1,000 lead service lines with lead concentrations below the action level. (Tab 290). The Capital Improvement Program assumed that the lead service replacement program would continue beyond 2004. In the fall of 2003, as the budget for the next fiscal year was being discussed by the Board and its Budget Committee, WASA's staff communicated that funds would be needed for continued lead service line replacement and that the prior year's replacement program had been in full compliance with EPA regulations. (Tab 134). Similarly, on October 24, 2003, Mr. Marcotte sent a report on the results of WASA's lead service line replacement program in 2003 to Mr. Rizzo of the EPA. The report noted that WASA's plan for 2004 was to replace 615 lead service lines though a combination of capital projects and other construction and to identify 1,000 samples with lead concentrations under the LAL. (Tab 262 at WAS 0001412).

In an interview, Mr. Johnson indicated that after September 2003, as he looked ahead to the lead service line replacement program that WASA would be required to implement during the 2003-2004 year, he specifically asked Mr. Marcotte to develop an early plan to

address that task. (Interview of Jerry Johnson, June 2, 2004). Mr. Johnson said that he did so because he was concerned about making sure that WASA had a "concise" and focused plan for the replacement process in the year ahead, so that WASA would take whatever public relations and other preparatory steps were necessary to ensure that the process went smoothly. (*Id.*). According to Mr. Johnson, despite his repeated communications on this topic to Mr. Marcotte, such a plan did not materialize, although Mr. Marcotte often told Mr. Johnson that such a plan was "in the works." (*Id.*).

By November 2003, WASA's Engineering & Technical Services Division had three days of meetings to develop a plan of action for the lead service replacement program for 2003-2004. The stated goal of these meetings was to learn from the details of the 2003 lead service replacement effort in developing a strategy for the 2004 program. (Tab 291). A subsequent e-mail from Roger Gans describing the 2004 lead service replacement plan and addressing the lessons learned from 2003 suggests that one of the lessons learned from the 2003 program was that "[s]ampling and testing should be done in the winter when the water temperature makes for lower lead concentrations." (Tab 292).

WASA obtained EPA grant funding under the Safe Water Drinking Act to help fund the lead service line replacement program. (Tab 293). In connection with obtaining EPA grant funding, WASA also published public notices and held a public meeting at the MLK Library on December 17, 2003. (Tab 294). The PowerPoint presentation from the meeting indicates that the attendees were told that lead concentrations in the community had exceeded the LAL. (Tab 295). The meeting minutes, however, again indicate very sparse attendance for this meeting — only two citizens attended, along with three WASA employees and two employees of the DoH, Dr. Lynnette Stokes and Anita Keys. (Tab 296). The minutes do not reflect a discussion of health effects of lead; in an interview, Ms. Russell said that the two citizens had questions about the health ramifications of elevated lead levels and were not satisfied with the answers they received. (Interview of Jodye Russell, April 15, 2004). Ms. Russell indicated that she followed up with those citizens and provided the additional information they requested regarding lead concentrations found by WASA's testing.

For the 2003 monitoring period, the actual construction and sampling in connection with the lead service replacement program is scheduled to be completed during 2004. Mr. Marcotte indicated in an interview that WASA now expects to physically replace all 7% of the lead service lines that must be replaced in this year. (Interview of Michael Marcotte, May 25, 2004).

4. Lead Monitoring and Results for the July 1, 2003 to December 31, 2003 Monitoring Period

For the monitoring period from July 1, 2003 to December 31, 2003, WASA took samples from 106 sites and analyzed both the first-draw and the second-draw samples from those sites. (Tab 297). Based on the report on testing results from this period that WASA provided to the EPA, WASA received its first analysis results for routine monitoring from this period on November 26, 2003. (*Id.*). This delay might be explained by the fact that the Aqueduct's testing facility was struggling to keep up with the testing and analysis required by the testing efforts that were being conducted in connection with the lead service line replacement program. In an

interview, Mr. Cochrane indicated to Covington that the number of samples involved in the lead service line replacement program created a backlog of samples at the Aqueduct. (Interview of Curtis Cochrane, March 31, 2004).

On Friday, January 23, 2004, according to an e-mail from Richard Giani, WASA received the final sampling results from the Aqueduct. (Tab 298). Coincidentally, on that same day, Mr. Rizzo requested the lead monitoring data from the period. (*Id.*). When the sampling was completed, again the 90th percentile sample from both the first-draw and second-draw had lead concentrations in excess of the LAL — for the second monitoring period in 2003, the 90th percentile lead concentrations for the two draws were 63 ppb and 43 ppb, respectively. (*Id.*). All told, lead concentration in 35 of the 106 samples taken between July 1 and December 31 exceeded the LAL. (Tab 297). Mr. Giani prepared a draft letter for Mr. Marcotte to send to the EPA on that same day. (Tab 298). Mr. Marcotte sent the letter to Mr. Rizzo and provided the results from the sampling in the second half of 2003. (*Id.*; Tab 13 at 25). The EPA received these sampling results from WASA on January 26, 2004, in an e-mail sent by Mr. Giani to Mr. Rizzo. (Tab 13 at 25).

5. DoH Outreach

As noted earlier, after WASA began sending out the sampling results from the lead service line replacement program sampling in the fall of 2003, WASA began to receive a significant number of inquiries from concerned customers interested in understanding the significance of their results. (Interview of Jerry Johnson, May 19, 2004; Interview of Jodye Russell, April 15, 2004; Interview of Leonard Benson, April 1, 2004). According to Mr. Benson, there was some concern at WASA about whether it had the appropriate expertise to answer customer questions regarding the health effects of elevated lead levels in drinking water, and so WASA requested assistance from DoH in responding to customer inquiries. (Interview of Leonard Benson, April 1, 2004). Because WASA employees are not public health professionals, in an October 2003 e-mail to his staff, Mr. Benson expressed a concern regarding potential liability for both WASA and the employees if they began to provide advice to customers on health issues; instead, he encouraged referrals to DoH, stating that WASA "cannot rectify DCDOH deficiencies by assuming their professional responsibilities." (Tab 299 at 2).

Ms. Russell said that a number of customers who had health-related questions regarding lead were calling WASA at this time, in part because they had difficulty getting through to DoH. (Interview of Jodye Russell, April 15, 2004).[114] Mr. Johnson stated that, in response to these issues, he told the WASA staff to continue to seek assistance from DoH staff,

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[114] While WASA was concerned that DoH was unresponsive on public health issues, Covington noted that members of DoH's Water Quality Division were seeking information regarding the lead testing results in late 2003. In December 2003, Gregory Hope, head of DoH's Water Quality Division, e-mailed WASA seeking the sampling result information from the widespread sampling program done pursuant to the lead service line replacement program. (Tab 300). The documents do not show whether or not WASA ultimately forwarded the requested information prior to the January 31, 2004 *Washington Post* article.

and authorized his staff to offer to provide funding to DoH to expedite the receipt of such assistance, although Mr. Johnson was not aware of whether that offer was ever communicated to anyone at DoH. (Interview of Jerry Johnson, May 19, 2004). During the fall of 2003, WASA's staff was not happy with the level of cooperation they were receiving from the DoH. One e-mail expresses a concern that DoH was "dropping the ball" by not adequately responding to health-related questions on lead, and that customers' frustrations with this could provoke negative press coverage of WASA. (Tab 299 at 3). This e-mail proposes that WASA's senior management become directly involved in trying to secure assistance from DoH. (*Id.*). In interviews, WASA employees also indicated that, for the public meetings on the lead issue held in the fall of 2003, they requested that a DoH public health employee attend in order to answer customer inquiries on the health effects of lead. DoH did provide staff for one such meeting held in December 2003, but WASA employees otherwise expressed frustration in with the difficulties they encountered in obtaining such assistance from DoH.

After the efforts of WASA's staff failed to secure a sufficient response from DoH, Mr. Johnson agreed that he should send a letter to James Buford, the Director of the DoH, in order to obtain greater DoH cooperation. (Interview of Jerry Johnson, May 19, 2004; Interview of Jodye Russell, April 15, 2004). Ms. Russell and Mr. Benson drafted a letter, and on December 22, 2003, Mr. Johnson sent the letter to DoH requesting its (i) assistance in responding to inquiries about the health effects of lead and (ii) participation in public meetings regarding the lead service line replacement program, in case questions regarding health issues arose. (Tab 301). WASA did not receive a response to the December 22 letter. Ms. Russell said that after it had received no response to that letter for several weeks, WASA decided to send a second letter. (Interview of Jodye Russell, April 15, 2004). On January 28, 2004, Mr. Johnson sent a second letter to Mr. Buford of the DoH requesting assistance and coordination on health issues relating to lead. (Tab 302). WASA received no response to this second letter before the lead issue received significant media attention in late January and February 2004. The documents Covington received from DoH do not reflect DoH's consideration or response to WASA's requests, and the DoH did not provide Covington with access to the DoH employees involved.

6. Events Leading to the *Washington Post's* January 31, 2004 Article

During and after the EPA grant meeting that WASA held on December 17, 2003 at the MLK Library, a few citizens asked a number of questions regarding the scope of the lead service line replacement program and regarding the larger issue of lead in the water supply. (Interview of Jodye Russell, April 15, 2004). In these conversations, Ms. Russell agreed to and did provide the citizens with additional information on the lead issue, which may have included data on testing of other homes in the city. (Interview of Jodye Russell, April 15, 2004; Interview of Elizabeth Lawson, April 22, 2004). Both Ms. Russell and Ms. Lawson believe that the customers in turn provided this data to the *Post*, which led to the *Post*'s January 31, 2004 article. (*Id.*).

In an interview, Mr. Marcotte indicated that by the third week of January 2004, he had received the aggregate results from the over 6,000 samples collected as part of the testing in lieu of replacement effort and had analyzed the results. (Tab 134; Interview of Michael Marcotte, May 25, 2004). When he reviewed that data, he was "shocked" by the fact that not only were

there a significant number of homes with results exceeding the LAL, but there were also a large number of homes with results above 100 ppb. (Interview of Michael Marcotte, May 25, 2004). Mr. Marcotte informed Mr. Johnson, and the two prepared a presentation to the Board regarding these troubling results. (Interview of Michael Marcotte, May 25, 2004). However, neither of the two alerted the Board to the results during the preparation of this presentation. Mr. Marcotte said that the Board had been scheduled to meet just days after the *Post* article was published, a meeting at which he and Mr. Johnson planned to make the presentation regarding the sampling results. (*Id.*; Tab 134). As in other instances described throughout the report, this delay in quickly and effectively communicating information deprived the Board of knowledge of these results in advance of the publication of the *Post* article.

VI. Conclusions and Recommendations

The facts and analysis provided in Section V of the report reflect the information available to Covington regarding WASA's monitoring of lead concentration levels from June 2000 to January 2004, as well as WASA's response to elevated concentrations of lead in the drinking water during that time. Given the limitations on the scope of materials reviewed by Covington and the limitations on Covington's access to individuals outside of WASA who might have information relevant to these topics, the conclusions and recommendations provided in this section could be worthy of reconsideration in the event that new information later comes to light. Nonetheless, while the limitations on Covington's access may have created difficulties in conclusively resolving certain specific factual issues, conclusions regarding the failures of communication, controls, and governance that occurred in WASA's lead monitoring process since 2000 can nonetheless be reached. The factual findings discussed above present a sufficient basis upon which to raise a number of recommendations for the consideration of WASA's Board of Directors.

As an initial matter, it should be noted that WASA's Board, WASA and the EPA have taken a number of recent actions meant to address many of the issues noted in the report. For example, in the recent administrative order agreed to by both the EPA and WASA, both entities agreed to take a number of steps meant to ensure stricter compliance in the future with the dictates of the LCR. To eliminate redundancy, this section will not, for the most part, list those steps in its recommendations. In addition, WASA's Board has taken a number of actions over the past few months to address lead-related water quality concerns, including the adoption of an aggressive plan to replace all lead service lines in the District and the hiring of a public health expert to provide the Board with advice and insight in that area. The recommendations listed below are meant to augment, not supplant, these efforts.

A. WASA's Actions and Role in the Lead Monitoring Process

1. WASA's Compliance with EPA Regulations

The record with respect to WASA's compliance with the LCR and EPA guidance, in connection with WASA's lead monitoring since 2000 and its response to elevated concentrations of lead in the drinking water, indicates that WASA should make significant changes in the process by which it endeavors to comply with EPA regulations.

a) Exclusion of Samples in the 2000-2001 Lead Monitoring Period

Some examples highlight the flaws in the process by which WASA endeavored to comply with EPA requirements. First, the exclusion of certain samples in WASA's final report to the EPA, in connection with the 2000-2001 monitoring period, raises a number of serious concerns. Without the ability to interview the former Water Quality Manager, Ms. Bhat, it is not possible to determine conclusively whether there was an appropriate basis for the exclusion of

five different first-draw samples in that period.[115] Nevertheless, it is evident that there were a number of significant shortcomings in the manner in which certain samples were excluded or invalidated.

First, it does not appear that Ms. Bhat or WASA created or maintained any documentation indicating what samples were excluded or invalidated and on what basis. There is also a marked lack of documentation from this time period regarding the sampling process, including the content of the volunteer lists from which WASA drew its sampling group, the reasons why that group changed from the sampling group that participated in the prior monitoring period, the reasons why certain volunteers failed to provide full sample results, or the precise list of volunteers associated with the results listed in the final EPA letter. The absence of documentation regarding the sampling process and any determinations to exclude or invalidate certain samples is troubling.

Second, while the decision to invalidate or exclude certain samples from the final results required making important judgments regarding compliance, it does not appear that anyone in WASA's management other than the Water Quality Manager was actively involved in that process. As noted in Section V.A, there is some dispute regarding the extent to which Ms. Bhat informed her supervisors, Mr. Boateng and Mr. Marcotte, that she had excluded or invalidated certain samples. More troublingly, Ms. Bhat's explanations for why she did not include the five samples in the final EPA results has shifted over the years. The fact that Ms. Bhat has offered shifting explanations of the rationale for excluding certain samples not only raises doubts as to whether there was an appropriate basis to exclude the samples, but it also raises significant questions as to whether Ms. Bhat was adequately supervised in completing tasks related to EPA compliance.

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[115] As discussed in Section V, the DCOIG, with assistance from the EPA OIG, did conduct an investigation, spanning more than a year, into whether the exclusion of these samples was inappropriate. In connection with that investigation, the DCOIG received from the complainant copies of sampling results for the five samples in question which were not included in the final EPA results. However, it appears that DCOIG and EPA OIG investigators simply accepted Ms. Bhat's explanation of the rationale for excluding certain samples, without seeking supporting documentation or attempting to determine whether the criteria for exclusion were met for individual, excluded samples. Moreover, while the DCOIG recognized the limitations on its knowledge of EPA requirements and appropriately sought the cooperation of the EPA OIG in that regard, it appears that this coordination with the EPA OIG did not yield a more rigorous assessment of whether EPA requirements were met in excluding the samples. Indeed, that coordination with the EPA OIG failed to clarify a misunderstanding of the nature of the sampling results received by the DCOIG, a misunderstanding that contributed to the ultimate conclusion to close the case as unsubstantiated. This investigation by the DCOIG and the EPA OIG could have represented an opportunity for issues regarding WASA's lead monitoring practices to be evaluated and questioned, both inside and outside WASA, years before the January 2004 *Post* article was published.

In any event, regardless of whether Ms. Bhat informed her superiors of the details regarding the exclusion of certain samples, both Mr. Boateng and Mr. Marcotte were at least aware by July 17, 2001 that WASA was in jeopardy of exceeding the LAL, subject to Ms. Bhat's further inquiry into the validity of the samples. Yet, in the interval between that July 17 date and Mr. Marcotte's August 6, 2001 letter to the EPA, indicating that WASA had not exceeded the LAL for the monitoring period, neither Mr. Boateng nor Mr. Marcotte inquired to any significant degree as to the status of Ms. Bhat's review. This is particularly surprising because, had WASA exceeded the LAL, it would have been required to take significant steps to implement public education and lead service line replacement programs. Indeed, when Ms. Bhat provided a draft of the August 6 letter to Mr. Marcotte, neither Mr. Boateng or Mr. Marcotte asked what had changed in the intervening time to spare WASA from an LAL exceedance. This lack of curiosity is troubling. In part, this failure to inquire further was likely due to the fact that lead monitoring was not a high-profile issue for WASA at the time, and that both men were busy with a myriad of other responsibilities. But whatever the reason, the failure of inquiry, combined with the resulting confusion regarding the basis for the exclusions, suggests that WASA's efforts to ensure EPA compliance require greater management oversight.[116]

Finally, it does not appear that WASA adequately informed the EPA of the exclusion or invalidation of certain samples from the 2000-2001 monitoring period. Although Ms. Bhat claims that she did so, no WASA or EPA employees corroborated that claim, and no documentation of such communications exist.

b) Public Education Efforts in the 2001-2002 Lead Monitoring Period

Likewise, the decisions regarding the content of WASA's public education efforts following the exceedance of the LAL in the 2001-2002 monitoring period indicates the absence of adequate controls with respect to decision making on EPA compliance issues. As discussed in the report, considerable deliberation went into the content of WASA's public education efforts. WASA executives, including the General Manager, were focused on framing the content of those materials in a way that would avoid creating undue public concern or alarm. To a large degree, the content of those materials did include the language set forth in the LCR. However, in some instances, the LCR-specified language was altered in ways that appear to be designed to minimize the significance of the exceedance or of the health effects of lead in the water supply. These changes to the LCR's language may or may not have had a material effect on a customer's reaction to or understanding of lead monitoring issues. Yet those alterations suggest that WASA was attempting to minimize the impact of the information it provided, and those changes may have contributed in part to the relatively low level of public awareness of the lead issue prior to January 31, 2004.

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116 This lack of oversight continued into the 2001-2002 monitoring period. Despite knowing that WASA had narrowly avoided an LAL exceedance in the prior monitoring year, Mr. Boateng and Mr. Marcotte claim not to have inquired about the status of the 2001-2002 lead monitoring results until the summer of 2002, when the monitoring period had nearly ended.

At the same time, in other communications, WASA management took pains to reassure customers about the quality of the water, such as in the use of the phrase "Your water is safe" in its annual Water Quality Reports. It did so despite significant opposition to the use of such language from employees, Board members and public advocacy groups.

In addition, in publications such as the *Living Lead Free in D.C.* brochure, WASA included LCR-specified language, but interspersed it along with significant amounts of additional information not directly focused on the issue of lead in the water supply (*i.e.*, information regarding the health effects of lead paint, or other types of lead exposure). This information can legitimately be viewed as providing helpful context regarding the health effects of lead about which District residents should be informed. Whatever the value of that additional information, however, it should have been accompanied by clear, strong statements about the lead testing results for the monitoring period and the implications of those results (statements not necessarily required by the LCR). In the absence of such clear statements, the inclusion of additional information unrelated to lead in the water may have distracted public attention away from lead monitoring results and inhibited public awareness of the potential health risks of elevated lead levels in the drinking water. Although WASA officials spent significant time discussing the content of its public education materials, the ultimate product of those discussions were public education materials that may have contributed to the failure of the public to perceive that there was an issue with respect to lead in the drinking water.

Finally, WASA missed a required public service announcement in the spring of 2003 and may have provided certain other LCR-required materials to the EPA only after regulatory deadlines had lapsed. These failures occurred not as the result of any conscious disregard for the LCR requirements but because there was an absence of controls in place at WASA to ensure compliance with those requirements.

In light of these examples, Covington recommends that the Board consider making a number of significant changes to the process by which WASA complies with EPA lead and copper monitoring regulations (as well as other EPA regulations):

- **Recommendation 1: WASA Should Assign Responsibility for Oversight of EPA Compliance to a Specific Individual in WASA's Senior Management**

As an initial matter, WASA should consider making supervision of the EPA compliance process with regard to lead and copper monitoring, as well as other EPA compliance tasks, a significant part of the express job responsibilities of an employee in WASA's senior management. That employee should be responsible for keeping track of WASA's compliance obligations and taking steps to ensure that they are met, supervising WASA employees involved in the compliance process with respect to their compliance-related duties and responsibilities; ensuring that adequate documentation is kept of compliance decisions; making decisions regarding important or potentially controversial compliance issues; ensuring that the EPA is adequately informed of those decisions; and keeping WASA's senior management informed of compliance issues.

- **Recommendation 2: WASA Should Develop a System for Ensuring and Documenting EPA Compliance**

In addition, WASA should develop written policies and procedures to govern how WASA addresses EPA compliance issues. These policies and procedures could address how monitoring and testing, as well as other actions relating to EPA compliance, will be conducted; how the results of compliance activity will be documented; who at WASA is the appropriate decision maker for various compliance-related issues; and how information related to compliance issues will be communicated within WASA and to external parties. The creation of an internal Compliance Calendar to ensure that WASA is aware of compliance-related deadlines — an initiative discussed in the recent EPA administrative order — is one example of such efforts.

Likewise, the absence of a documentary record regarding certain actions taken in connection with EPA compliance efforts highlights the importance of creating a system by which records of compliance-related activities are created and maintained. These records would include documentation regarding sampling results, correspondence sent and received regarding the lead monitoring process, information regarding the lists of volunteers who participate in the monitoring program and how they were selected, and any other records regarding the monitoring process. Such documentation can be crucial to subsequent efforts to support or explain compliance-related decisions and statements. Similarly, any discussion or agreements reached with the EPA should be adequately documented to create a reliable record.

- **Recommendation 3: WASA Should Ensure That the Water Quality Division is Adequately Staffed**

In the materials Covington reviewed and in the interviews it conducted, more than one employee of the Water Quality Division expressed the view that the Division is understaffed and has been for many years. In addition, certain staff positions in that Division remained vacant for very long periods during the time period covered by the report. Ms. Bhat raised the issue of staffing levels on a number of occasions during her tenure, yet, in part because of the acrimonious relationship she had with fellow employees and supervisors, the staff of the division was not significantly augmented during her tenure. (Relatedly, Ms. Bhat fired a number of such employees during her tenure, adding to the difficulty in this area.). Yet Mr. Giani, the present Water Quality Manager, also raised similar concerns about the need for additional full-time employees in the division, in part because of the increased efforts the division has been devoting to lead issues. Accordingly, senior management and the employee charged with supervising the compliance function should ensure that there are adequate staff resources to complete all tasks required by the compliance process.

- **Recommendation 4: WASA Should Independently Test the Validity and Accuracy of WASA's Testing and Monitoring Processes**

Finally, WASA should consider implementing some mechanism by which the accuracy and validity of WASA's testing and monitoring processes are independently verified. Covington recommends that WASA's Board retain an independent organization to randomly test and verify the accuracy of the results arrived at by WASA for at least the next two years. After

that, these efforts to verify the validity of the results might be assigned to WASA's Internal Auditor when WASA has demonstrated the capacity to do so reliably.

2. Internal Communication at WASA

The course of events with respect to WASA's lead monitoring activities since 2000, as well as WASA's internal response to the lead monitoring results, indicates that failures of communication within WASA impeded WASA's and the Board's ability to process and respond to information in a timely and effective fashion.

Two central communication failures exemplify these problems. First, by the fall of 2001, it was apparent from the results of the lead monitoring conducted in July and August of 2001 that lead concentrations would almost certainly exceed the LAL for the 2001-2002 monitoring period. As discussed in Section V.B, there is some dispute regarding whether the Water Quality Manager, Ms. Bhat, informed her supervisor, the Director of Water Services, Mr. Boateng, during that time period of the nature of these results. Covington did not find any undisputed documentary evidence that Ms. Bhat provided these results to Mr. Boateng until July 2002. Regardless of when Ms. Bhat informed Mr. Boateng, however, it is clear that the fact that the LAL would be exceeded for the 2001-2002 monitoring period was not communicated until the end of the summer of 2002, nearly nine months later, to WASA senior management, WASA's Public Affairs Office, or WASA's Engineering & Technical Services Division (all of whom would be integrally involved in coordinating WASA's response to such an exceedance). This delay cost WASA valuable time in developing its plan of action to meet the public education and lead service line replacement requirements that follow such an exceedance, and might have imperiled WASA's ability to comply with EPA requirements. Even after this monitoring period, during the monitoring period encompassing the first half of 2003, lead monitoring results were not regularly forwarded from Mr. Obasi to Mr. Boateng. It also appears that Mr. Marcotte was not made aware of and did not inquire about those results, despite the fact that they could have provided additional data to dispel the working hypothesis held by some at WASA that the prior year's exceedance was a "fluke," occasioned by the small number of samples collected, and was not representative of water quality system-wide.

Second, in the summer and fall of 2003, WASA's Engineering & Technical Services Division supervised the collection of more than 6,000 water samples in connection with the lead service line replacement program. Although the results from that large-scale sampling program were arriving at WASA throughout the late summer and fall of 2003, the Engineering & Technical Services Division remained solely focused on meeting the requirement that just over 1,600 lead service lines be replaced either physically or through testing. As a result of this single-minded focus on meeting the EPA's deadline, the Engineering & Technical Services Division did not formally aggregate and assess those results until late December 2003, and the nature of the sampling results was not communicated to members of the Water Quality Division, the Director of Water Services, the Chief Engineer/Deputy General Manager, or the General

Manager until after that time.[117] Some key WASA personnel, as well as the Board and members of the District government, were not aware of the results until the January 31 *Post* article was published.[118] This delay and lack of communication is wholly unacceptable. This delay deprived those at WASA with primary responsibility for assessing and responding to water quality issues of access to important information regarding the deteriorating condition of the District's water.

In light of these and other communication failures, WASA's management and Board should institute some formalized control mechanism to ensure adequate communication of information of lead monitoring results among the Water Quality Division, the Engineering & Technical Services Division, and WASA's senior management. The following are some recommendations to that end:

- **Recommendation 5: WASA Should Ensure that Water Quality Testing Results Are Distributed within WASA**

With regard to the initial provision of lead monitoring results from the Aqueduct, WASA should ensure that those results are directly provided not only to the Water Quality Manager, but also to the Director of Water Services and the Chief Engineer/Deputy General Manager. In addition to the normal provision of sampling data, WASA should work with the Aqueduct to develop a system to ensure that multiple WASA employees are immediately informed of any indication of unusual or troubling lead monitoring results.

- **Recommendation 6: WASA Should Establish Regular Internal Meetings to Communicate Key Information Regarding Water Quality**

With regard to the sharing of information between WASA divisions regarding lead monitoring issues or other water quality issues, WASA should consider establishing a regular meeting or conference call that would occur at least quarterly to discuss developments in water quality. The call's participants would include at least the Water Quality Manager, the Director of Water Services, the employee assigned responsibility for oversight of EPA compliance, the employee assigned the responsibility to act as a liaison on public health issues with the DoH (discussed more fully below), the Public Affairs Director, a representative of the Engineering & Technical Services Division and the Chief Engineer/Deputy General Manager.

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[117] Although they did not receive an aggregate analysis of those sampling results before December 2003, certain WASA executives, including the General Manager and the Chief Engineer/Deputy General Manager, were generally aware through the late summer and early fall of 2003 that WASA was having difficulty locating a sufficient number of sampling locations below the LAL and that, as a result, WASA had to significantly increase the number of samples collected.

[118] Indeed, the Water Quality Manager was not even made aware of the basic fact that WASA was sampling hundreds and thousands of additional homes at the time.

- **Recommendation 7: WASA Should Institute Formalized Management Reporting Requirements Regarding Water Quality Information**

In addition, WASA's management should consider having the Water Quality Manager report to either the General Manager or the Deputy General Manager at least twice a year, specifically to highlight any unusual, different, or significant developments or judgments made in connection with WASA's monitoring of water quality and related compliance issues.

- **Recommendation 8: WASA Should Consider Whether to Adopt Additional Mechanisms to Improve the Flow of Information**

Many of the issues noted in the report stem, at base, from failures of communication, both in terms of providing information to senior management and to the Board. Many of the other recommendations in this section suggest ways to improve the flow of information through formal reporting structures. WASA should also consider whether there are additional mechanisms, either informal or outside these reporting structures, that would also improve the flow of information to management and the Board. One reform that has been adopted in a different context at other companies is a mechanism for making anonymous reports to an appropriate committee of the Board of Directors. WASA should consider whether some analogous mechanism would also be beneficial here.

3. Board Oversight of WASA and of WASA Executives

WASA's Board was informed of the fact that lead concentrations exceeded the LAL for the 2001-2002 monitoring period and was kept apprised of the general plan of action in place to respond to that exceedance. However, Board members generally expressed the view that during the time frame covered by this report, they were provided with little substantive information regarding WASA's lead monitoring efforts and its responses to those efforts. In part, this was because, until WASA exceeded the LAL in late 2002, lead monitoring would not have been expected to be an issue necessitating Board action or input.

Board members uniformly expressed displeasure with the fact that, until the *Washington Post* reported on the issue in January 2004, they were unaware that a large percentage of the results of sampling taken in conjunction with the lead service line replacement program had exceeded the LAL. Mr. Johnson and Mr. Marcotte appear not to have been aware of the final sampling numbers until only a few weeks before the *Washington Post* story broke. However, as noted above, both men were generally aware months earlier that many of the homes WASA was testing were providing sampling results that exceeded the LAL. The Board should have been provided with this information sooner than it was.

Board members believed that Mr. Johnson and Mr. Marcotte are extremely effective executives who have achieved much during their tenure at WASA's helm. However, many felt that the two tended to provide information to the Board very late, and even then only in a "packaged" format. Some Board members viewed this slow information flow, including the

provision of these lead service line sampling results, as attributable to Mr. Johnson's and Mr. Marcotte's attention to detail and tendency to shoulder significant amounts of responsibility without aggressively delegating work.[119]

Some Board members suggested that, in the case of the lead service line replacement sampling issue, without being provided with the actual sampling data, they did not have enough substantive experience regarding the technical aspects of WASA's work to ask questions that might have drawn such information out of WASA executives earlier. Moreover, it appears that after learning about the LAL exceedance in 2002, Board members did not question WASA officials to any great degree regarding what the ramifications of such an exceedance might be with regard to water quality. In part, this may have been due to the tone and content of information that was provided to Board members by management regarding the exceedance.

In light of these issues, the Board should consider the following steps that would help to improve its oversight of water quality and compliance-related issues:

- **Recommendation 9: WASA's Board Should Advocate For the Appointment of Board Members With Pertinent Technical Experience**

The Board should advocate for the future appointment of at least one Board member with an engineering background, that is, with pertinent technical experience to assist in asking probing questions of WASA staff regarding such issues. More than one Board member indicated to Covington that they believe that Board oversight of water quality issues could have been improved by the presence of such a Board member. The Board might also advocate for the appointment of at least one future Board member with a professional background in public health who can assist with oversight of the many public health responsibilities of WASA. The Board has already communicated a request for the appointment of a Board member with technical expertise to the Mayor. The Board should continue its advocacy in this regard.

- **Recommendation 10: WASA's Board Should Institute Reporting Requirements Regarding Water Quality and EPA Compliance Issues**

In addition, the Board should consider instituting reporting requirements to ensure that it receives adequate and timely information regarding water quality and compliance-related issues. For instance, the Board could institute a biannual report to either the full Board or an appropriate Board committee regarding such issues, one that specifically highlights any unusual or significant developments or judgments that WASA has recently made in those areas.

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[119] For instance, in some cases, WASA employees attributed delays in distributing sampling results to customers to administrative requirements that the General Manager's office approve correspondence and other materials relating to the lead service line replacement program.

- **Recommendation 11: WASA's Board Should Consider the Creation of an Executive Committee**

The Board could consider creation of an Executive Committee, constituted of the Chairman and the heads of each of the existing committees. This Executive Committee could meet regularly in executive session with the General Manager and Chief Engineer/Deputy General Manager to discuss emerging issues. Such a committee would be beneficial, in that it would allow a smaller group of Board members to have advance knowledge and input into issues that might be inappropriate for WASA to raise in a public setting, as complete information regarding the issue would not yet be available. While mindful that implementing this recommendation may require statutory change, Covington believes that the increased Board oversight of management would inure to the public benefit. Any statutory modification should include appropriate mechanisms to ensure the public remains informed.

- **Recommendation 12: WASA's Board Should Have Involvement in Major Public Education Efforts**

The Board, to the extent it has not already done so, should request that it (or, at the least, a smaller subset of Board members) be given the opportunity to review major public education initiatives undertaken by WASA in response to an LCR exceedance. As noted in the report, WASA executives gave careful thought to the content of such materials, which resulted in the production of materials with a particular and potentially misleading tone. Because the content of such materials is presented to a very wide audience, and because that content ultimately reflects not only on WASA but on the Board as well, Board members should be permitted the opportunity to provide substantive comment on such materials prior to their release. Board involvement in these decisions would also afford management the benefits of various Board members' particular expertise.

- **Recommendation 13: WASA's Board Should Review the Structure of Executive Responsibilities**

While historically the structure of management responsibilities has been the purview of the General Manager, in light of the course of events noted in the report, the Board should undertake a review of the structure of responsibilities of WASA's executives below the level of the General Manager. It should do so with a focus on ensuring that each executive has a manageable number of divisions or direct reports reporting to him or her, such that he or she can effectively oversee those areas. The hiring of a new Chief Engineer/Deputy General Manager to replace Mr. Marcotte also presents an opportunity to review and assess, and possibly to adjust, the structure of the senior executives' responsibilities.

4. WASA's External Communications with Environmental Regulators

As a general matter, WASA kept the EPA and the DoH informed regarding its lead monitoring results and its response to elevated lead levels in 2002 and 2003. WASA apprised the DoH of the elevated levels of lead both in the fall of 2002 and in the fall of 2003. Of the two entities, WASA appears to have more often been the one to reach out in order to seek partnerships with DoH regarding the provision of health-related information. In some cases,

these requests for help were met with slow response time from DoH or were not met with any response at all. However, WASA tended to initiate these contacts with the DoH in a reactive fashion, only after a particular issue arose, typically in circumstances where a regulatory deadline was about to expire or when a crisis had arisen. Notably, in at least one instance — involving DoH employee Jerusalem Bekele's requests to WASA and the EPA in 2001 and 2002 that they voluntarily fund initiatives to replace lead service lines — DoH initiated contact with WASA on an important lead-related issue that could have prompted earlier inquiry into the state of WASA's lead monitoring results for the year. At times, WASA and the DoH were responsive to requests made by the other on lead-related issues. However, at least some WASA officials expressed concern that communication lapses between different DoH divisions, such as the Bureau of Environmental Quality and the Bureau of Hazardous Materials and Toxic Substances, contributed to difficulty in working with DoH.

Likewise, WASA kept the EPA informed of nearly every significant development in connection with elevated lead levels during the 2001-2002 monitoring period and afterwards, although at times the communication between WASA and the EPA was informal in character. The EPA has indicated that the formal notification it received from WASA regarding lead monitoring results and public education efforts fell short in some instances with regard to certain reporting deadlines imposed by the LCR. Although significant questions exist about the samples that WASA excluded or invalidated at the end of the 2000-2001 monitoring period, the records reviewed in the course of Covington's investigation did not suggest that there were systematic efforts to conceal information from the EPA or other agencies.

In order to ensure that WASA interacts regularly and substantively with DoH and EPA, WASA's management and Board should consider taking the following steps:

- **Recommendation 14: WASA Should Assign Responsibility to One Employee to Act as a Regular Liaison to DoH**

WASA should institute, as part of the express duties of an employee, responsibility for regular and formal contact with the DoH. This employee should at least meet regularly with contacts in both the Bureau of Environmental Quality and the Bureau of Hazardous Materials and Toxic Substances of DoH. As discussed more fully below, this employee, with the cooperation of DoH employees, would play an important role in establishing an effective partnership with DoH.

- **Recommendation 15: WASA Should Ensure Communications Regarding Contact With the EPA are Distributed Within WASA**

WASA should ensure that, to the extent possible, multiple WASA employees responsible for water quality, including the Water Quality Manager and the Director of Water Services, are aware of contacts made with the EPA regarding water quality issues. This could be accomplished simply by ensuring that all such persons are copied on relevant e-mails, or are made aware after the fact of the content of phone conversations. In addition, while a cooperative working relationship with the EPA is obviously desirable, it is not clear that WASA was well served by the informal character of much of its interactions with the EPA. To that end, WASA

might benefit from holding regular, formal meetings or conference calls with Region III staff on water quality issues.

5. WASA's Public Education Efforts

In response to the exceedance of the LAL, WASA undertook extensive public education efforts in the fall of 2002 and in 2003. As described in Section V.C, there was some concern at WASA regarding the creation of undue concern or alarm among the public if the content of WASA's public education materials was not carefully calibrated. In part because of this concern, as noted above, some of WASA's public education materials inappropriately downplayed the fact that certain homes had elevated lead levels above the EPA action level and the extent to which lead in the drinking water created a potential health issue. As a result, the materials did not sufficiently identify the problem or convey sufficient urgency regarding the potential health issues.

- **Recommendation 16: WASA Should Obtain the Advice of Expert Consultants on How to More Effectively Communicate Risk to the Public**

The EPA has commented extensively on WASA's public education efforts, and has made a number of well-considered recommendations. (Tab 303). WASA's management and Board should undertake a serious consideration of those recommendations. The retention of a consultant with expertise in risk communications would help to ensure that WASA's public outreach materials effectively communicate the nature of potential health risks in order to generate an appropriate level of concern about attention to water quality problems (and not to create undue concern). The Board should consider ways to ensure that WASA regularly receives such assistance. Covington notes that WASA's Board has recently retained a public relations firm to assist it in this regard through September 2004. While more effective public relations advice is important, risk communication is a specialized field, and WASA and its customers would also benefit from expert advice specifically focused on better communicating about risk in its public education efforts.

- **Recommendation 17: WASA Should Organize a Task Force to Address Public Health Communications When an EPA Action Level is Exceeded**

Likewise, WASA's Board should encourage the identification and organization of a task force to address public communication issues when an EPA action level is exceeded. This group could include representation from WASA, the DoH, the D.C. Council, the D.C. Mayor's Office, the Metropolitan Washington Council of Governments, the EPA, as well as civic groups, neighborhood associations, and media representatives. These constituencies could play a critical role, both in the dissemination of public education materials and in ensuring that community stakeholders are adequately informed and invested in communicating necessary public health messages and in working with WASA to respond to issues. Such a task force might be a natural outgrowth of the interagency working group discussed more fully below.

- **Recommendation 18: WASA Should Undertake a Review to Ensure that its Customer Service Division Has Sufficient Resources**

In addition, it appears that the Customer Service Division at WASA was not prepared to respond effectively to customer queries regarding lead in the water even prior to the recent media attention. Covington recommends that WASA's management or Board undertake a review of WASA's customer service resources in order to ensure that the Customer Service Division has sufficient resources and training to respond to customer queries on lead issues.

B. The Actions and the Role of Other Governmental Bodies in the Lead Monitoring Process

1. The EPA's Lead and Copper Rule

a) Purpose of the LCR

In connection with its investigation, critics have told Covington that the lead standards imposed by the LCR do not adequately protect the public health. Assessing the appropriateness of the requirements imposed by the LCR is outside the scope of what Covington was charged with investigating. However, in the course of the investigation it became apparent that there is some confusion regarding whether the LCR standards are intended to be health-based standards, and, if so, whether they are adequate to protect public health. For instance, some might criticize WASA for relying so heavily on testing in lieu of replacement as a means to satisfy the LCR's requirement that it replace 7% of its lead service lines in a particular year. However, while the health effects of testing in lieu of replacement are debatable, the regulation allows the practice, and, in the case of WASA, the EPA approved it. Another concern, given WASA's past experiences, is that the LCR does not give water systems specific direction to account for sample results showing lead levels substantially above the LAL — individual sample results of just over 15 ppb are treated in the same manner as results that are several times the LAL. Similarly, the LCR also does not consider or adjust for the extent to which lead samples exceed the LAL — exceedances where the 10th percentile exceeds the action level are treated in the same manner as exceedances where the 50th percentile exceeds the action level.

Accordingly, the EPA and the appropriate Congressional committees or subcommittees should continue to consider whether the LCR is intended as a health-based standard and whether the LCR, in its present form, adequately protects the public health.

b) Public Education

As discussed above, the question of whether the public education efforts undertaken by WASA adequately conformed to the requirements of the LCR is a close one. The public education materials used by WASA highlight certain shortcomings in the proposed language provided by the LCR. While the LCR requires utilities to distribute materials relating to the health effects of lead, for instance, it does not require that those materials explicitly link the fact that the materials are being distributed due to the fact that elevated levels of lead have been detected in the community's drinking water. To the extent that one of the purposes of the public education requirements in the LCR is to put the public on notice of potential health issues,

in order to allow individuals to protect themselves from those risks, Covington suggests that the appropriate governmental actors revisit the proposed language provided by the LCR and consider revising the language accordingly.

In addition to revising the language provided, the EPA should reconsider whether the LCR's mechanisms for disseminating the information are adequate. Some of the steps required for public education rely on media outlets to print or broadcast information conveyed by the water system, but do not take into account whether or not those outlets actually distribute the information. Likewise, in an age of high-speed Internet communication and cable news networks, the communication approach required by the LCR appears outmoded, and may no longer reflect the best approach to educating the public. In such a high-speed news environment, the government actors should consider whether the LCR currently requires public education efforts with sufficient frequency, and whether it identifies the proper vehicles to ensure that the public is adequately informed following an exceedance.

c) Sampling Procedures

The LCR requires decisions regarding sampling both during the tap water monitoring process and in conjunction with testing in lieu of replacement. It is not clear that the LCR adequately defines the sampling procedures that must be followed by utilities in these regards, however. The statistical reliability of sampling results may be undermined to the extent that decisions regarding the selection of sampling locations are not adequately defined. Covington suggests that governmental actors reconsider the mechanisms to ensure the independent rigor and reliability of sampling location selections. In addition, they should consider whether reduced monitoring under the LCR (which provides for 50 samples to be taken annually) provides sufficient data over an extended period of time to reach reliable conclusions regarding water quality.

2. EPA Oversight

In some respects WASA's efforts to comply with EPA requirements were complicated by the fact that WASA received inconsistent messages from the EPA. For example, WASA designed and planned its lead service replacement program for 2003 with the understanding that the EPA expected the program to be complete by December 31, 2003. In the summer of 2003, the EPA informed WASA that the EPA now expected the program to be completed by September 30, 2003. The fact that WASA learned of this shift only in the summer of 2003, and apparently with no advance warning, unnecessarily complicated WASA's effort to complete the lead service replacement program on time.

Likewise, WASA kept the EPA relatively informed of the steps it was taking to comply with the LCR. However, the EPA has only recently begun to raise issues, such as with the timing and content of formal reports or the content of WASA public education materials, that could have been corrected at an earlier date had the EPA communicated those concerns to WASA. For instance, the EPA's recent administrative order charges that WASA's reporting practices regarding the selection of sample locations was deficient as early as 1998. Had the EPA expressed concerns about the adequacy of the reports at that time, the deficiencies alleged could have been corrected for the intervening periods. Instead, the EPA expressed to WASA

that it was fully compliant with the LCR for those monitoring periods. These inconsistent and/or untimely messages from the EPA make WASA's efforts to respond to regulatory oversight difficult.

Even where WASA may not have kept the EPA fully informed regarding its lead monitoring activities — for example, in connection with the five samples that were excluded from the final 2000-2001 results — the EPA later became aware of the issue but failed to follow-up on it adequately. As described in Section V.A, years ago, the EPA OIG was aware of allegations that certain samples were inappropriately excluded from the final results, due to its work in assisting a DCOIG investigation. Likewise, Mr. Rizzo, WASA's chief point of contact at the EPA, appears to have participated in that investigation. Yet, the materials provided to Covington by the EPA do not suggest that Mr. Rizzo or the EPA took further action to investigate the charges at the time. Instead, the EPA OIG appears to have relied on the conclusion of the DCOIG, a conclusion uninformed by the EPA's expertise in the area, that the allegations were unsubstantiated.

The LCR envisions a collaborative process between a utility and its primary regulator, particularly when an action level is exceeded. For this collaborative relationship to work, the utility's contact at the regulator must have the authority to advise the utility on whether proposed courses of action meet with regulatory requirements. In light of recent charges by the EPA, the collaborative process broke down in this case, and WASA's point of contact at the EPA may have been acting with apparent authority that he did not have. These difficulties may arise in part because of the EPA's relative inexperience as a primary regulator under the LCR. The EPA and WASA should work together to develop a process whereby WASA can learn of potential issues with its proposed course of action from its primary regulator before the fact rather than after it. The EPA's failure in this case to raise potential issues of concern earlier, despite being adequately informed, materially contributed to WASA's difficulties.

The agreement reflected in the recent administrative order represents an important first step to ensure that, going forward, WASA and the EPA maintain open and effective lines of communication.

3. Interaction with the D.C. Government

While WASA undertook some efforts to inform the D.C. Council and ANC Commissioners regarding its lead monitoring results, these efforts failed in part because WASA's communications did not adequately convey the significance of the issue. In early 2003, for example, WASA sent letters to the ANC Commissioners inviting them to attend a public meeting regarding the lead service replacement programs. Like WASA's public education efforts, these letters did not highlight the fact that there had been elevated levels of lead found in the drinking water or sufficiently convey the potential urgency of the issue. Letters regarding the lead service line replacement program sent to the members of the D.C. Council similarly downplayed the issue. Covington recommends that WASA's Board consider the mechanisms by which WASA conveys information to the D.C. Council and the elected government officials, and that it create controls to ensure that pertinent information is conveyed, and with an appropriate sense of urgency.

4. Role of the Washington Aqueduct

In providing drinking water to the residents of the District and in testing that water for its lead content pursuant to the LCR, WASA works in tandem with the Aqueduct. With respect to the lead monitoring process, the Aqueduct itself performs tests on samples, after having received those samples from WASA personnel, who in turn received them from customers. The fact that one entity (the Aqueduct) tests samples for lead content while another (WASA) collects those samples, receives the results for those samples, and reports those results to the EPA, has created logistical difficulties in the past.

For example, both in interviews and in documents reviewed by Covington, WASA employees noted concern with the pace at which the Aqueduct provided the results from its testing of samples. One instance in which this issue may have affected WASA came in the 2000-2001 monitoring year, when WASA waited to complete the collection of its lead monitoring samples until June 2001, near the very end of the compliance year. Because of this, and because the Aqueduct provided results for these tests in mid-July of that year, WASA needed to act very quickly in order to make a final determination as to whether the results exceeded the LAL for the year. It is not clear, but is certainly possible, that the nature of this compressed time frame motivated Ms. Bhat's decision to invalidate or otherwise exclude samples at the end of the testing period. The last-minute rush may also have played a role in the failure to generate clear records regarding any such invalidations or exclusions.

In addition, Aqueduct employees, who do not work for WASA and do not have regular communication with WASA, are not only the first to know of a lead exceedance, but are among those in the best position to examine the trend of testing data during a particular monitoring year. Yet in the 2000-2001 and 2001-2002 monitoring periods, the Aqueduct appears to have shared the results of such testing only with Ms. Bhat, and did not contact anyone else at WASA to alert WASA to significant numbers of samples exceeding the LAL. Of course, it is the responsibility of WASA's own employees, regardless of what the Aqueduct does, to ensure that information regarding lead monitoring is shared throughout the organization. However, the fact that some of the persons most significantly involved in that testing process do not work for WASA limited the opportunities for such information to be freely shared.

Although it is beyond the scope of this report, it is also noteworthy that the Aqueduct makes treatment decisions regarding the District's water supply that affect both WASA and the District's residents. The cause of elevated lead levels in the District over the last few years may have been due to water treatment decisions by the Aqueduct in which WASA and local representatives were relatively uninvolved. Whether this structure should be modified is an issue that should be examined. At a minimum, the unusual bifurcated nature of this water system raises important issues of coordination and communication that should be considered and addressed by the concerned parties.

5. D.C. Department of Health Involvement

WASA is first and foremost a water and sewer utility. Hence, assessing and responding to public health issues is not among its core competencies or expertise. Nonetheless, WASA is involved in providing drinking water and sewage services that have public health

implications. Accordingly, it is important that WASA has the structures and relationships in place to work effectively with those agencies that do possess the expertise and core competence in assessing and responding to public health issues, such as the DoH and other local public health agencies in WASA's service areas. However, as noted above, WASA and the DoH were not effective partners in responding to elevated concentrations of lead in the drinking water. The difficulties they experienced in working together impeded the effort to assist the public in responding appropriately to potential health effects of lead in the water.

- **Recommendation 19: WASA's Public Health Liaison Should Seek a Standing Partnership with DoH**

Partnerships between public agencies are most effective at responding to problems when there has been an established relationship in place when the problem arises. To that end, Covington suggests that WASA's management and Board consider having one WASA employee's express job responsibilities include acting as a liaison to the DoH and other local public health agencies. The public health liaison could keep the public health agencies informed of potential issues relating to water and sewer issues. It is important that the liaison maintain the relationships and structures for interaction at all times, in order that they be in place if and when serious public health issues arise.

Likewise, the DoH should make a commitment to working with WASA in partnership on public health issues relating to drinking water and sewage. Ideally, the DoH would assign a liaison to WASA to interact on public health issues and to assist WASA with obtaining appropriate assistance and resources from the DoH if and when serious public health issues arise.

6. Creating an Interagency Working Group

- **Recommendation 20: Covington Recommends the Creation of a Standing Interagency Working Group to Coordinate Action on Water Quality in the District**

Monitoring and ensuring water quality is both an important and a complex task. This task is further complicated by the number of actors who play a role in ensuring that the system is operating properly. Given the importance of the goal of maintaining water quality, it is essential that there be communication and coordination among the various responsible actors. To that end, Covington recommends the creation of a permanent interagency working group that would include WASA, the EPA, the DoH, and the Aqueduct, which would meet regularly to ensure that there is communication and coordination on water quality and water treatment issues.

APPENDIX A: DOCUMENTS REVIEWED BY COVINGTON DURING ITS INVESTIGATION

RECEIVED FROM	DATE RECEIVED	DESCRIPTION OF DOCUMENTS
David Bardin	3/04/04	Transcript of 5/10/91 Hearing of House Committee on Energy and Commerce
WASA	3/04	WASA Telephone Directory
WASA	3/04	PowerPoint presentations regarding lead issues
WASA	3/04	Relevant Laws binder
Dr. Lynn Goldman	3/9/04	Initial Expert Report of Dr. Lynn Goldman
WASA	3/10/04	Complaint (*Harding-Wright, et al. v. WASA*)
WASA	3/04	WASA's Response to *Washington Post*'s Request for materials under FOIA
WASA	3/04	*A Brief History of Lead Services in DC* binder
WASA	4/6/04	First production in response to March 26, 2004 request. Documents bear the following bates ranges: WAS 1-249; WAS 309-409; WAS 414-524; WAS 631-698; WAS 762-1193; WAS 1201-1408.
D.C. Department of Health	4/6/04	Documents from D.C. Department of Health, including email correspondence and responses to *Washington Post*'s FOIA request.
WASA	4/20/04	Second production in response to March 26, 2004 request. Documents bear the following bates ranges: WAS 250-308; WAS 410-413; WAS 527-628; WAS 699-703; WAS 748-761; WAS 1194-1200; WAS 1409-3308.
Environmental Protection Agency ("EPA")	4/22/04	Three boxes of documents responsive to FOIA request. Not bates numbered.
EPA	4/04	Additional documents responsive to Covington's FOIA request of March 18, 2004. Not bates numbered.
EPA	4/30/04	Additional documents responsive to Covington's FOIA request of March 18, 2004. Not bates numbered.
WASA	5/5/04	Third production in response to March 26, 2004 request. Documents bear the following bates ranges: WAS 0003309-WAS 0004653; WAS 4654-5001; WAS 5002-5491.
WASA	5/5/04	Three CDs containing e-mails of present and former WASA employees
WASA	5/5/04	Laptop containing e-mails of present and former WASA employees.
District of Columbia	5/6/04	Documents responsive to Covington's FOIA request of April 17, 2004, bates numbered 00001-00216. Redacted in

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RECEIVED FROM	DATE RECEIVED	DESCRIPTION OF DOCUMENTS
Office of Inspector General ("DCOIG")		part; redactions indicated by asterisk (*).
WASA	5/7/04	Fourth production in response to March 26, 2004 request. Documents bear bates numbers WAS 0005492-WAS 0005827.
WASA	5/7/04	Three CDs containing e-mails of present and former WASA employees
WASA	5/13/04	Discovery and pleadings from *Bhat v. DCWASA*
WASA	5/13/04	Fifth production in response to March 26, 2004 request. Documents bear the following bates ranges: WAS 463-471, WAS 525-526, WAS 629-630, WAS 704-747, and WAS 704-NR-747-NR; WAS 6381-6591; WAS 5828-6964; includes documents created by Baker Killam (WAS 6680-6957).
WASA	5/18/04	Three CDs containing e-mails of present and former WASA

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RECEIVED FROM	DATE RECEIVED	DESCRIPTION OF DOCUMENTS
WASA	7/7/04	One CD containing e-mail of present and former WASA employees.
EPA Office of the Inspector General	7/13/04	Materials regarding DCOIG investigation, in which EPA OIG participated.

APPENDIX B: INDIVIDUALS INTERVIEWED BY COVINGTON DURING ITS INVESTIGATION

Witness Name	Title/Department (Current or Former)	Date of Interview
Sherry Conway Appel	Former Alternate Member of Board of Directors	6/15/04
David Bardin	Member of Board of Directors	5/12/04
Leonard Benson	Director, Department of Engineering and Technical Services	4/1/04
Kofi Boateng	Water Services Director	4/7/04
James Caldwell	Member of Board of Directors	5/28/04
Curtis Cochrane	Program Manager, Department of Engineering and Technical Services	3/31/04; 6/23/04
Marc Edwards	Professor of Civil Engineering, Virginia Polytechnic Institute and State University	5/20/04
Roger Gans	Manager of Design Division, Department of Engineering and Technical Services	4/2/04; 6/23/04
Glenn Gerstell	Chairman of Board of Directors	5/20/04

APPENDIX C: INDIVIDUALS WHO REFUSED TO BE INTERVIEWED BY COVINGTON DURING ITS INVESTIGATION

Witness Name	Title/Department (Current or Former)
Jerusalem Bekele	District of Columbia Department of Health
Linda Bernhardt	Communications Specialist, Baker Killam
Victoria Binetti	Environmental Protection Agency
Seema Bhat	Former Water Quality Manager
Jon Capacasa	Environmental Protection Agency
James Collier	District of Columbia Department of Health
Ted Gordon	District of Columbia Department of Health
Gregory Hope	District of Columbia Department of Health
Thomas Jacobus	Washington Aqueduct
James Jerpe	Environmental Protection Agency
Kenneth Pantuck	Environmental Protection Agency

APPENDIX D: INDIVIDUALS WHO WERE UNAVAILABLE TO BE INTERVIEWED BY COVINGTON DURING ITS INVESTIGATION

Witness Name	Title/Department (Current or Former)
C.C. Johnson	Former Member of Board of Directors
Dr. Omer Abdusalam	Former Member of Board of Directors