DEPARTMENT OF THE ARMY

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COMPLETE STATEMENT OF

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On

"Lead Exposure in D.C.: Prevention, Protection and Potential Prescriptions"

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Mr. Chairman and Members of the Subcommittee, I am Tom Jacobus, General Manager of Washington Aqueduct. Thank you for inviting me to testify today concerning strategies for reducing lead exposure via drinking water.

Washington Aqueduct is committed to insuring that it delivers safe, high quality drinking water to its customers. Every action we take as an organization is focused on achieving this. Washington Aqueduct is a wholesale water utility that serves the District of Columbia, Arlington County, Virginia, and the City of Falls Church's service area in Northern Virginia. Washington Aqueduct is part of the United States Army and the U.S. Army Corps of Engineers, and we have been purifying water drawn from the Potomac River and serving our customers since 1862.

The General Manager of the District of Columbia Water and Sewer Authority, the County Manager of Arlington County and the City Manager of Falls Church serve as the principals of the Washington Aqueduct Wholesale Customer Board. It is this board that sets the strategic direction for Washington Aqueduct and approves operating, maintenance and capital improvement budgets. All funds come from the wholesale customers.

Washington Aqueduct is regulated by Region 3 of the United States Environmental Protection Agency, and even though it is federal in nature, it operates essentially like every other regulated public water utility.

Washington Aqueduct has an exceptional record of producing and delivering safe, reliable, cost effective water service to its customers. We are guided by the regulations promulgated under the Safe Drinking Water Act. These regulations set maximum contaminant levels, treatment techniques, and action levels that are there to protect the public's health as they drink and use the water.

The elevated levels of lead in drinking water in some homes in the District of Columbia that were reported in the media in January 2004 were caused by a treatment change made in November 2000. Washington Aqueduct switched from chlorine to chloramine as the disinfectant in the distribution system to keep the water free from bacterial while it was in the water mains on the way to the customer's tap. That change was made to be more protective of chronic exposure to disinfection byproducts. However it resulted in unforeseen changes to the corrosion control measures being used. As a result, the water in contact with the lead service lines was too reactive and lead was leached from those lines

To reduce the possibility of leaching lead from the lead service lines,, a technical solution to restore effective corrosion control was researched and tested and then applied to the treatment process and delivered to the entire distribution system in August 2004. By adding orthophosphate as a corrosion inhibitor, lead levels measured at the tap in accordance with the Safe Drinking Water Act's Lead and Copper Rule

began dropping as predicted. The use of a chemical additive as a corrosion inhibitor in the Washington Aqueduct treatment process will continue indefinitely.

It is important to note that lead gets into drinking water *after* the water has been produced at the treatment plants. Our source water, the Potomac River, is regularly tested for lead. Most samples have no detectable lead. If it is detected, it is at a trace amount, more than an order of magnitude less than the action level threshold for the household tap sampling in the Lead and Copper Rule. Nothing in the treatment process adds lead to the water, and the network of public water mains that transports the water to the homes does not add lead. Lead can only be introduced to the drinking water if lead service lines connect a residence to the water main (or if there is galvanized pipe in a residence which has had a lead service line), if there is lead in solder joints in home plumbing, or if there is lead in plumbing fixtures in the homes.

The mechanism for lead to enter the water is leaching from the lead service lines, the lead solder, or household plumbing fixtures that contain lead. However, if the treatment plants have optimal corrosion control techniques, the possibility of lead leaching into the drinking water in the home can be very significantly reduced, because the corrosion inhibitor creates a non-reactive surface inside the pipes and fixtures.

To confirm analytical calculations and bench tests of corrosion control chemistry, Washington Aqueduct built an array of lead pipe loops and set it up at the treatment plant to mimic water use conditions found in some DC homes. We have seven sets of these loops. We used them to determine the optimum concentration of the corrosion inhibitor to add. Water samples were collected daily over a period of months and from that data, the Environmental Protection Agency specified the optimum corrosion control treatment in terms of pH and concentration of orthophosphate. This corrosion control chemistry has been in use since late summer 2004, and has been very effective in establishing the protective film inside the household plumbing. This has resulted in our customers achieving compliance with the provisions of the Lead and Copper Rule. For the last six years, we have continued to keep one of the set of seven loops operating so that, at the treatment plant, we can monitor the effectiveness of the corrosion control in the water leaving the plant.

Looking forward, this lead pipe loop array will be a test bed for analysis of the effects of any future change we may make in the chemistry or the treatment techniques applied to the drinking water. We will use the lead pipe loops to investigate thoroughly what happens to corrosion control before any change is made and water is sent to the distribution system and on to homes and businesses. All of this will be evaluated by our consultants and then by the Environmental Protection Agency before any future treatment change is made.

We have followed this review procedure with the current change from using pure chlorine delivered by trucks and stored at the treatment plants in pressurized metal cylinders, to receiving an aqueous form of chlorine that is much safer to transport and use. It will provide the same degree of disinfection. But, because it is a different

chemical form and affects other aspects of water chemistry, we did a thorough consultant-led review and then coordinated several reviews with the Environmental Protection Agency prior to implementation. We expect that the Environmental Protection Agency will, over time, promulgate new maximum limits for contaminants that are currently unregulated, or perhaps adjust some of the existing standards for those that are already regulated.

Washington Aqueduct is currently engaged in a comprehensive risk-based study to determine what changes might be required to the current treatment processes to ensure that the public is protected and to make sure that we can meet future stricter regulatory limits. National experts, government agencies, our wholesale customers, and stakeholders representing public interests are working with us on this project.

We are confident that through precise water chemistry control our customers can maintain compliance with the Lead and Copper Rule. That confidence is based not only on science, but also on collaboration with our customers. We have the very best equipment for analyzing lead concentrations, and we share the data with our wholesale customers. We have regular meetings to discuss water quality, and we get excellent feedback.

It is important to understand that even with optimum corrosion control chemistry in a system that is fully compliant with the Lead and Copper Rule, as long as homes have lead service lines (or have galvanized pipe and had a lead service line in the past), lead solder, and lead in fixtures, the water flowing though the pipes may pick up some concentration of lead. However by following the directions that the District of Columbia Water and Sewer Authority has communicated to its customers, everyone living and working in the District of Columbia can confidently drink the water.

Mr. Chairman, thank you for the opportunity to offer this testimony, and I look forward to responding to any questions you or other Members of the Subcommittee may have.