Fact Sheet: Washington Aqueduct's Future Treatment Alternatives Study (FTAS)

Over the past several years, Washington Aqueduct worked with a team of internationally recognized water treatment experts and other stakeholders to determine whether its water treatment plants (WTPs) should incorporate additional (or alternative) treatment processes. Key features of the FTAS are summarized below.

- FTAS was a forward-looking project to anticipate water quality challenges that could arise in the future so that long-range planning could be well-informed, methodical, and transparent.
- FTAS's starting point was full compliance with existing and currently foreseeable regulations. The goal was to determine whether additional (or alternative) treatment should be provided to "go beyond the regulations."
- Unlike traditional engineering studies to evaluate water treatment alternatives, FTAS did not set out to mitigate one or two specific contaminants. Instead, the project addressed hundreds of contaminants posing health-related, aesthetic, and regulatory challenges.
- FTAS explicitly addressed the tradeoffs between water quality improvement; environmental and community impacts, including energy usage, chemical use and consumption, and residuals production; risks of unintended negative consequences; and costs.
- FTAS recognized that alternative approaches to addressing various contaminants could sometimes be more effective than treatment.
- FTAS relied upon an independent Expert Panel, drawing upon internationally recognized experts in water treatment, public health, and energy, to consider:
    - … the universe of water quality challenges—not just those contaminants that have previously been monitored or detected here, but also those contaminants or concerns that are being discovered elsewhere and could reasonably be expected to occur here.
    - …the universe of treatment technologies, including common technologies as well as new approaches still under development.
    - … the degree of uncertainty in our knowledge of individual contaminants—including occurrence levels and frequency, and health effects.
    - …the degree of uncertainty in our understanding of treatment, including the ability of a technology to significantly remove (and not simply transform) contaminants at levels expected in Washington Aqueduct water.
    - …the degree of risk posed by contaminants.
    - … the degree of risk mitigation that could be achieved by a given technology when treating Potomac River water.
- The FTAS engaged a Stakeholder Panel consisting of national and local experts and advocates from the public health, environmental, community development, and utility sectors to raise awareness of the project team regarding criteria for evaluating various mitigation strategies.
- The project team consulted with experts in the areas of toxicology, corrosion control, endocrine disrupting compounds, and pesticides where additional specific knowledge was needed.
- The FTAS developed a process for continuous evaluation of water quality challenges and mitigation strategies. Newly identified water quality challenges and new regulations will be factored in and analyzed every five years (or more frequently as appropriate).

Washington Aqueduct and its Customer Board have used the FTAS process to develop a Drinking Water Quality Enhancement Plan (DWQEP). The DWQEP balances systematic enhancements with responsible stewardship of financial resources and natural resources. The DWQEP elements will be incorporated into the Capital Plan. The DWQEP elements are summarized in Table 1.

Table 1. DWQEP Components

Component	Description
McMillan WTP Capacity Study	Determine the capacity of the McMillan WTP needed to meet demands.
Nitrification Study	Support efforts of WA Customer systems to understand and control the factors that affect nitrification.
Study and Implement Non-Treatment Strategies - Source Protection	Work with Potomac Drinking Water Source Protection Partnership to improve watershed protection
Study and Implement Non-Treatment Strategies - Consumer Education	Work with the American Water Works Association, the Association of Metropolitan Water Agencies, the Water Research Foundation, the Metropolitan Washington Council of Governments, and other stakeholders to improve consumer education on drinking water and human health topics of specific local interest.
Study Filterability Improvements for McMillan WTP	Pending the outcome of the McMillan WTP Capacity Study, identify the factors that limit filtration (and, consequently, water production) and develop control measures.
UV Disinfection of Cryptosporidium Desktop Study	Undertake preliminary planning to prepare for the possible implementation of ultraviolet disinfection if needed in the future.

Frequently Asked Questions

- **Are Washington Aqueduct's WTPs operating well and meeting all existing Safe Drinking Water Act (SDWA) regulations?** Yes; the Washington Aqueduct's Dalecarlia and McMillan water treatment plants (WTPs) meet all existing requirements of the SDWA. SDWA is the main federal law that ensures the quality of Americans' drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees water suppliers who implement those standards.
- **If Washington Aqueduct's wholesale customers (DC Water, Arlington County, and the City of Falls Church) are willing to spend more money on advanced treatment to produce even higher water quality than is required by law, is there an obvious treatment choice for advanced treatment?** The team identified 14 water quality challenges that Washington Aqueduct could focus on to "go beyond the regulations," such as further minimizing nitrification, adding more barriers against Cryptosporidium or other harmful microorganisms, further reducing disinfection byproducts, or adding more treatment to reduce the harmless tastes/odors that occasionally occur. But no single treatment process would be capable of addressing more than a couple of these 14 challenges. For some of the challenges, like hexavalent chromium, it is not known whether treatments could be developed that could take already trace levels to even lower levels. EPA is intensively studying several of the 14 priority challenges and may regulate some of them soon. Thus, there is no obvious treatment choice at this time to improve the already excellent quality of Washington Aqueduct drinking water.
- **Since Washington Aqueduct is a government facility, shouldn't it just use government funding to add ALL the treatment enhancements and make the highest quality water feasible?** 100% of Washington Aqueduct's funding comes ultimately from the water bills paid by consumers in its service area. Washington Aqueduct gets no federal or state allocations. Drinking water utilities that purchase water on a wholesale basis from Washington Aqueduct already work hard to keep water rates affordable for all consumers.
- **Are there tradeoffs to enhancing water quality as much as possible through treatment?** Costs for the individual technologies are substantial—and combining multiple technologies to address multiple challenges would easily require hundreds of millions of dollars. Washington Aqueduct's carbon footprint and chemical consumption could dramatically increase, depending on the enhancement. And with any change, there is the risk of unintended negative consequences to water quality.
- **Are there other options (besides advanced treatment) for Washington Aqueduct or its wholesale customers to enhance drinking water quality?** Yes, there are at least two non-treatment alternatives: (1) Watershed Protection. Washington Aqueduct already participates in a watershed protection partnership with other utilities that use the Potomac River as a drinking water supply. The partners develop better ways to protect our water source--for example, by encouraging the planting of trees and other appropriate vegetation downstream of dairy operations to prevent runoff containing pathogens and other contaminants from entering the river. (2) Distribution System Infrastructure Investment and Management. Washington Aqueduct's wholesale customers, like most water utilities across the country, are facing the need to renew or replace the distribution system piping and other infrastructure as it ages. Programs for the renewal and replacement of aging infrastructure, along with programs for management of distribution system practices, are being implemented. By addressing root causes of water quality degradation, these actions may also improve drinking water quality.