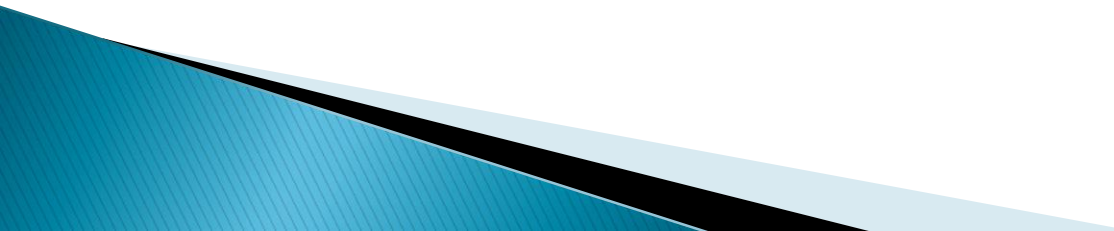


Recommendation on Perfluorinated Compound Treatment Options for Drinking Water

New Jersey Drinking Water Quality Institute
Treatment Subcommittee
April 8, 2015



New Jersey Drinking Water Quality Institute Treatment Subcommittee

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DWQI Treatment Subcommittee

At the direction of the NJDEP Commissioner, the Drinking Water Quality Institute Treatment Subcommittee is responsible for evaluating best available treatment technologies or methods, for removal of the hazardous contaminants from drinking water, as well as overall program review.

DWQI Treatment Subcommittee Findings

- ▶ The subcommittee met a total five times beginning in July 2014. In light of the fact that the treatment options for each of the three perfluorinated compounds is likely to be the same, due to the similar properties of each compound (e.g. persistent, water soluble, common long-chain structure, strong carbon-fluorine bonds, highly polar) the subcommittee determined that they would research and report on treatment options for all three compounds.
- ▶ The subcommittee gathered and reviewed data from a wide variety of sources in order to identify the widely accepted and well-performing strategies for responding to the presence of PFCs in drinking water, including switching to an alternate source rather than installing treatment

DWQI Treatment Subcommittee Findings (cont'd)

- ▶ It is widely reported in the literature that PFCs can be successfully removed from drinking water using treatment techniques discussed in the section below. Removal ratios vary depending on a number of factors (e.g. initial concentration and presence of other contaminants) but can exceed 90% removal and result in finished water with non-detectable levels of PFCs
- ▶ The ability to treat PFCs is not anticipated to be a limiting factor in the development of a recommended Maximum Contaminant Level (MCL) for PFNA, PFOA or PFOS

DWQI Treatment Subcommittee Findings (cont'd)

- ▶ When PFCs are detected, there are several options available to allow systems to continue to provide safe drinking water. Discontinuing use of a contaminated source by using an alternate source, while not “treatment,” may certainly be a viable option for some water systems.
- ▶ When selecting a treatment option there are many factors to be considered. These include: initial concentration of PFCs, the background organic and metal concentration, available degradation time, and other site conditions. Additional considerations include cost, the ability to address more than one contaminant with one treatment option and waste disposal.

DWQI Treatment Subcommittee Findings (cont'd)

- ▶ Selection of the most cost effective treatment process requires case-by-case evaluation (i.e. bench and/or pilot-scale studies) and may result in the use of more than one of the identified options in a treatment train
- ▶ Conceptual level design should be used to develop reasonable cost estimates for a full life-cycle cost analysis to include capital, operation and maintenance costs

DWQI Treatment Subcommittee Findings (cont'd)

- ▶ A review of the literature and several case studies indicated that Granulated Activated Carbon (GAC) is common treatment for PFC contamination. GAC was found to be highly effective for PFOA removal at two public water systems, one in Ohio and one in West Virginia with the use of dual filter design, careful monitoring for breakthrough, and frequent filter changes

DWQI Treatment Subcommittee Findings (cont'd)

- ▶ The efficiency of this method varies based on several factors including: pH, water temperature, contact time, the properties of the selected carbon, the concentration of inorganic substances in the water, ambient natural organic matter and the presence or absence of chlorine