Proposed Orange County Sanitation District

Constituents of Emerging Concern Policy

Should OCSD take a lead role on Constituents of Emerging Concern in wastewater and develop detection and characterization methods in wastewater treatment?

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will partner with other agencies, associations, and institutions to support the use of sound science to inform policy and regulatory decisions on constituents of emerging concern (CECs) at the federal, state, and regional levels. Staff will obtain and maintain current knowledge on CECs under regulatory consideration, including occurrence, analytical methods, regulations, and treatment to support the Sanitation District's mission.

Background

CECs also referred to as Constituents or Contaminants of Emerging Concern are pollutants that may or may not be subject to regulatory requirements or statutes yet pose a risk to public health and/or the environment. The Sanitation District is a recipient of CECs that are discharged along with domestic and residential wastewater; discharges from industrial, commercial, and other governmental facilities; and tributary discharging jurisdictions. The concept of CECs evolves over time and often the Sanitation District and other entities must acknowledge and understand their impacts to address the effects posed by each CEC.

For more than 50 years, the Sanitation District has adopted and enforced standards and requirements to protect the public health and safety, the environment, and the Sanitation District's workers and facilities, while collecting and treating wastewater. Initially the primary concern to the Sanitation District was conventional pollutants, those that originate from normal sanitary use and can be addressed by conventional wastewater treatment. With the 1972 amendment to the Clean Water Act, and as required by the Code of Federal Regulations, the Sanitation District implemented a mandated pretreatment program to control discharges containing toxic pollutants at their sources through permitting, enforcement, inspection, and sampling. The Sanitation District's Pretreatment Program promulgates the Sanitation District's *Wastewater Discharge Regulations Ordinance* (Wastewater Ordinance), which governs discharges to the sewer through various types of permits. The Wastewater Ordinance also includes numeric limits, referred to as Local Limits, that control the quality of non-domestic discharges to the sewer. These Local Limits are the result of a technical evaluation and comprehensive sampling and analysis effort, required under the Sanitation District's permit issued by the state to discharge to the ocean – the National Pollutant Discharge Elimination System (NPDES) Permit.

The Sanitation District's current NPDES Permit requires evaluation and monitoring of CECs. The Regional Water Quality Control Board (RWQCB) and EPA required the Sanitation District to study

and report on certain newer CECs in the Sanitation District's effluent and the receiving waters. The CEC study had to include the following categories and specified a set of particular constituents in each category: Hormones (8), Industrial Endocrine Disrupting Compounds (7), Pharmaceuticals and Personal Care Products (13), and Flame Retardants (9). Since 2014, California's State Water Resource Control Board has been updating its Recycled Water Policy and has identified CECs under consideration for projects that conduct surface spreading of recycled water, including the Groundwater Replenishment System (GWRS). In addition, to meet the Sanitation District's obligations to provide a high level of service for biosolids reuse and water reclamation through GWRS, the Sanitation District must evaluate and monitor CECs that affect these initiatives.

Although the Sanitation District has been involved with water reclamation with the Orange County Water District (OCWD) since the mid-1970's, the Sanitation District's mission changed significantly in the years leading up to 2008 when the Groundwater Replenishment System (GWRS) was commissioned. GWRS compelled the Sanitation District to consider impacts to drinking water limits and Notification and Response Levels, which are typically much lower than the standards in place for a wastewater treatment plant. For several critical constituents, OCWD and the Sanitation District established Level of Service commitments. The Sanitation District and OCWD established a response plan to follow when a constituent becomes a concern to either agency. Where the source can be identified, the plan organizes responsive actions from the Sanitation District and OCWD for industrial and commercial facilities. Domestic and residential sources are typically addressed by way of educational outreach to the public.

To determine the constituents that impact the Sanitation District's operations and reuse initiatives, the Sanitation District interacts with federal, state, and local agencies and monitors their regulatory and legislative efforts. Sometimes the job is straightforward, because the federal, state, or local agency focuses on a specific CEC chemical which yields a concentrated effort; however, sometimes, the effort can be interpretative. This requires a comprehensive, well-established program and experienced subject matter experts to identify the CECs that impact the Sanitation District. The Sanitation District must then evaluate the sources and decide what methods will be employed to control the discharges, if necessary.

Current Situation

With newer equipment and techniques, federal, state, and local government agencies are detecting constituents at very low concentrations in the drinking water. This has resulted in agencies studying more constituents and requesting NPDES Permit holders, such as the Sanitation District, to monitor and report CECs detected in the influent and effluent. However, wastewater is a much more complex matrix than drinking water, so reproducible low-level analytical methods are much more difficult to develop and implement for wastewater than drinking water.

The Sanitation District will also be required to develop new methods for addressing some of the CECs primarily discharged from residential communities or are present in the existing drinking water supply. The Sanitation District typically attempts to address such discharges through education and outreach while working with other agencies. Some CECs require the Sanitation District and other agencies to sponsor legislation and regulation development or to comment on a particular subject to protect the agency's interests. For example, the Sanitation District has advocated for minimizing or eliminating the use of specific CECs in manufacturing or consumer use to the California Department of Toxic Substances Control. To achieve its mission, the Sanitation District will need to continue supporting a variety of regulatory and legislative efforts.

Future Policy Statement

If source control, education and outreach, or legislative and regulatory efforts are not successful, the Sanitation District may be required to implement a technological or operational process change/investment to address a CEC.

The Sanitation District must align its resources to continue managing CECs throughout the service area and treatment process in order to comply with the Sanitation District's existing regulatory requirements. The Sanitation District must remain vigilant in monitoring the threats posed by upstream sources to its system; to continue to work with other agencies and professional organizations to develop robust analytical methods; and to evaluate routinely the need to establish sound policies, local limits, or other regulations and standards based on new local, state, and federal regulations to protect public health and the environment. The Sanitation District is required to continue implementing its established response plan by promoting effective source control and treatment, while also preparing for newer CECs and regulatory obligations. The Sanitation District will continue to work to understand current and future CECs by monitoring developing regulations and legislation and actively engaging water and wastewater stakeholders.

Two families of chemicals, PFAS and PFOA, have been identified as CEC's with a probability of impacting water and biosolids reuse. At the request of various Board Members, we have included the OCWD's August 2019 PFOA and PFAS Fact Sheet. This is an example of a CEC where the Sanitation District must be engaged helping to explore the science and shape future legislation and regulation to help create practical solutions to real world concerns.

Initiatives to Support Progress Toward the Policy Goal:

Initiative: The Sanitation District will continue to actively engage water and wastewater stakeholders on CECs to stay abreast of the scientific progress and provide timely briefings to the Sanitation District's Management Team and Board to facilitate informed decision making.

Initiative: The Sanitation District will continue to develop capacity to detect, quantify, and characterize CECs throughout the service area and treatment process in order to promote treatment effectiveness and the communication of credible risks.

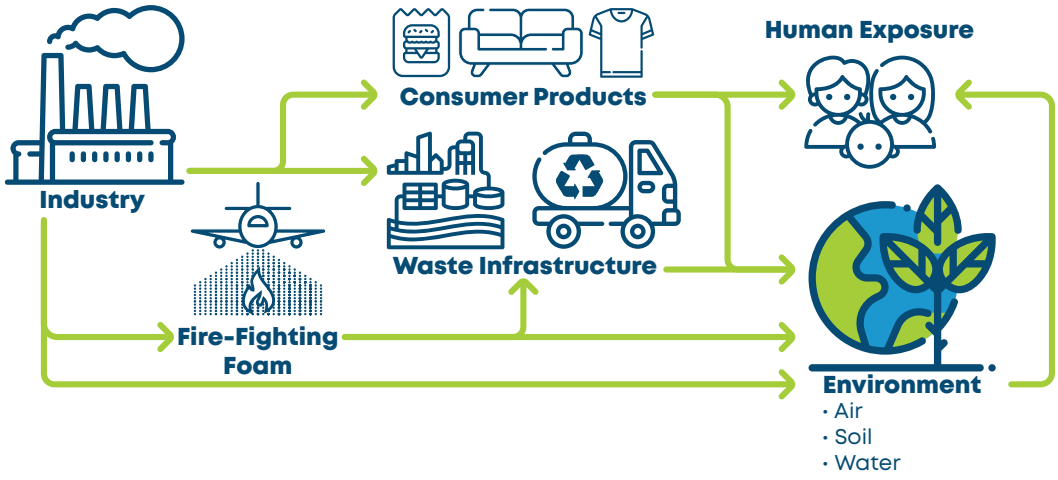
Initiative: The Sanitation District will actively research laboratory technics and other scientific research to understand the real and potential impact of CECs, like PFAS and PFOA, on the reuse of water and biosolids. The Sanitation District will use science-based knowledge to help shape legislation and regulation to protect the public health and environment.

Addressing PFOA / PFOS in Orange County

What Are PFOA and PFOS?
Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are chemicals that are prevalent in the environment and were once commonly used in many consumer products. They are part of a larger group referred to as per-and polyfluoroalkyl substances (PFAS). Although PFOA and PFOS are no longer manufactured in the United States, other countries still make products that contain these chemicals, which may be imported into the United States. [Note: other PFAS are still made and used in the US.]

What Are Ways People Are Exposed to PFOA and PFOS?
Water is just one of many ways that people come in contact with these substances. These chemicals are resistant to heat, water and oil and have been used for decades in hundreds of industrial applications and consumer products. PFAS have been found both in the environment and in blood samples of the general U.S. population. The U.S. Food and Drug Administration (FDA) has also detected PFAS chemicals in the U.S. food supply.

Due to the prolonged use of PFOA and PFOS in many common consumer products, the chemicals have been known to enter the water cycle through conventionally treated wastewater discharges from sewage treatment facilities, landfills and locations where the substances were used outdoors. Most people have been exposed to these chemicals through consumer products, but drinking water can be an additional source of exposure in communities where these chemicals have entered water supplies.



Common products that contain PFAS

August 2019

When Did OCWD First Detect PFOA and PFOS in the Groundwater?
From 2013-2015, the Orange County Water District (OCWD) performed testing for the local Orange County water retailers it serves as part of the Environmental Protection Agency (EPA) Third Unregulated Contaminant Monitoring Rule (UCMR3). The results of this testing were provided to the EPA, the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) and individually to the 19 water retailers OCWD serves. The UCMR data serves as a primary source of occurrence and exposure information that EPA uses to develop regulations.

What is the EPA Doing About PFOA and PFOS?
In 2009, EPA published provisional health advisories for PFOA and PFOS. As science and technology advanced, in May 2016, it replaced the provisional advisories with a lifetime health advisory, including the most sensitive populations, of a combined 70 parts per trillion (ppt). Based on preliminary information from EPA, 63 water suppliers in the United States detected PFOA and PFOS in their drinking water supplies. Twenty-six of these water systems are located in California. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states' agencies and other public health officials on health effects, analytical methodologies and treatment technologies associated with drinking water contamination. EPA is moving forward with the enforceable Maximum Contaminant Level (MCL) process for PFOA and PFOS. It is also gathering and evaluating information to determine if regulation is appropriate for a broader class of PFAS. While EPA is responsible for the safety of drinking water, the FDA regulates bottled drinking water. EPA standards are more stringent regarding the regulation of public drinking water.

What is California Doing About PFOA and PFOS?
In July 2018, DDW established interim drinking water Notification and Response Levels for PFOA and PFOS. Results above the Notification Level require agencies to notify the governing body for the areas where the water has been served within 30 days of receiving the verifying test results. If the Response Level is exceeded in drinking water provided to consumers, DDW recommends that the water agency remove the water source from service or provide treatment.

In April 2019, DDW sent monitoring orders to more than 200 public water systems across the state to test for PFOA and PFOS, including 12 in OCWD's service area. The comprehensive list of monitoring orders included 612 drinking water supply wells in California; of which 53 were in OCWD's service area. Wells were selected on the basis of proximity to either landfills, municipal airports or past detections of PFAS in wells. The data provided by this testing will help DDW determine standards for PFOA and PFOS in drinking water.

In August 2019, DDW announced a new Notification Level for PFOA and PFOS, 5.1 parts per trillion (ppt) and 6.5 ppt, respectively. The Response Level for PFOA and PFOS will remain at the current level of 70 ppt for both contaminants. DDW announced they will update Response Levels in Fall 2019.

CA DDW Interim Notification Levels (NL)*

PFOA
5.1 parts-per-trillion (ppt)

PFOS
6.5 parts-per-trillion (ppt)

CA DDW Interim Response Levels (RL)*

PFOA + PFOS
70 parts-per-trillion (ppt)
(recommended to take out of service)

*At the time of printing

A "part-per-trillion" is the equivalent of four grains of sugar dissolved in an Olympic-sized swimming pool.

If the level of both PFOA and PFOS combined is 70 ppt or above, DDW recommends the agency stop using the well or provide treatment. This is known as the Response Level.

What is OCWD Doing About PFOA and PFOS?

We take seriously our duty to provide safe, reliable, and high-quality drinking water meeting all state and federal standards to cities throughout Orange County. OCWD's Philip L. Anthony Water Quality Laboratory is the first public agency laboratory in California to achieve state certification to analyze for PFAS in drinking water. OCWD invested more than $1 million in equipment to support the lab in performing this analysis.

All water agencies in OCWD's service area operate their water systems following all drinking water requirements for PFOA and PFOS established by the EPA and DDW. OCWD completed the first quarter testing for PFOA and PFOS, for 12 of the local water retailers it serves. There are nine retailers with one or more initial monitoring order results greater that DDW's Notification Levels for PFOA and PFOS and all have notified their governing bodies. While NLs are precautionary health-based advisory levels established by DDW to allow for further research and analysis to be conducted by the state to determine the necessity of setting an enforceable drinking water maximum contaminant level (MCL), agencies within OCWD's service areas are taking action to ensure safe water supplies are the top priority. Additional testing for PFOA and PFOS will be conducted by OCWD on a quarterly basis. To further support this issue, OCWD is doing the following:

- Assist water retailers it serves in compliance with DDW notification and testing requirements
- Pilot test potential treatment techniques for removal of PFAS in groundwater
- Work with the Regional Water Quality Control Board regulators and the Santa Ana Watershed Project Authority to identify potential sources of PFAS
- Obtain laboratory certification to test for more PFAS compounds
- Monitor to determine extent of compounds in the groundwater basin and in recharge water supplies
- Stay current with changing technology for both detection and treatment
- Be transparent and communicate regularly with stakeholders

Your Drinking Water Is Safe: OCWD's Commitment to Water Quality

OCWD and the water retailers it serves provide some of the cleanest drinking water in the world. OCWD is committed to ensuring that the community is knowledgeable and has the resources available to understand local water quality. To help achieve this, OCWD remains proactive in water quality investigation and ensures that all test results are publicly available. In addition, comprehensive water quality data files are provided annually to the cities and districts it serves. OCWD tests water from about 1,500 locations throughout the Orange County Groundwater Basin, taking more than 20,000 samples and conducting 400,000 analyses of these samples each year.

OCWD and Retail Agencies in Orange County are Committed to Public Health and Safety

To meet the state's recommended PFAS levels, water providers are taking actions such as:

- Removal of water supply sources from service
- Use of imported water that meets the state's recommended levels of PFAS
- Blending multiple water supply sources to meet the state's recommended levels of PFAS
- Pilot testing of water treatment processes for PFAS

How Can I Learn More?

OCWD: For more information about PFOA/PFOS or water quality testing, visit www.ocwd.com or contact your local water provider for information specific to your community.

EPA: www.epa.gov/pfas

DDW: www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/PFOA_PFOS

FDA: www.fda.gov/food/chemicals/and-polyfluoroalkyl-substances-pfas