NJDEP Site Remediation Program

Contaminants of Emerging Concern

Contaminants of emerging concern are those chemicals that recently have been shown to occur in the environment and have been identified as a potential environmental or public health risk. New analytical capabilities have allowed scientists to identify chemicals in the environment in extremely low concentrations.

Contaminants of emerging concern are used in everyday products in our homes, on our farms, in our businesses, or by industry in commercial processes. These compounds are found in detergents, non-stick pans, stain-resistant and waterproof fabrics, fragrances, prescription and nonprescription drugs, disinfectants, and pesticides. Some of these contaminants are unintended byproducts from the manufacturing process, so it may not be obvious that these contaminants are in the products people are using.

To comply with the Technical Requirements for Site Remediation (N.J.A.C. 7:26E), all contamination, including all discharged hazardous substances, hazardous wastes, and pollutants, must be addressed. Contaminants of emerging concern, if discharged to the waters or onto the lands of the State, are pollutants that must be remediated using a Licensed Site Remediation Professional (LSRP) even if the contaminant is not a hazardous substance. When the site or area of concern under remediation is currently or was formerly occupied by facilities that manufactured, stored, handled, or used contaminants of emerging concern, LSRPs must consider these contaminants during the investigation and remedial action. LSRPs must evaluate the site for potential spills and releases through air, water, and waste discharges.

Per- and Polyfluoroalkyl Substances Background

Per- and polyfluoroalkyl substances (PFAS) have been used in a wide variety of industrial and commercial processes and products, including, but not limited to, electroplating and metal finishing (e.g., chromium plating), vapor/mist suppression, stain repellants, electronics, aerospace, automotive, insecticide/herbicides, adhesives/varnish/paints, as well as coatings for textiles (fabrics, upholstery, and carpeting) and paper.

Fluoropolymer manufacturing and facilities that used PFAS in industrial and commercial product manufacturing and fluorinated Aqueous Film Forming Foam (AFFF) are considered significant potential sources of PFAS. AFFF containing perfluorooctanesulfonic acid (PFOS) has been used to extinguish petroleum hydrocarbon fires. AFFF contamination has been identified at many locations where AFFF products were stored and discharged, including, but not limited to, airports, spill/crash sites, firefighter training facilities, refineries, and bulk petroleum storage facilities.

The scientific understanding of the toxicity, fate and transport, health effects, and analytical capabilities of PFAS are continuing to advance. PFAS are man-made chemicals that contain carbon and fluorine atoms of various chain length. PFAS are mobile, persistent, and soluble in water. Certain PFAS can be toxic and bioaccumulate in fish and/or humans when discharged into the environment. These contaminants at low levels can cause adverse health effects, as they persist (bioaccumulate) in the body for many years.

For additional general information, please see the links in the Additional Resources section below.

PFAS Standards, Criteria, and Guidance

Standards, criteria, and guidance are developed by the New Jersey Department of Environmental Protection (NJDEP) using assumptions that are protective for exposures over a lifetime. All measurements below are in nanograms per liter (ng/L) which is equivalent to parts per trillion (ppt).

Perfluorononanoic Acid (PFNA):

In July 2015, the New Jersey Drinking Water Quality Institute (DWQI) recommended a health-based maximum contaminant level (MCL) for perfluorononanoic acid (PFNA) of 13 ng/L. The DWQI is an advisory body to the NJDEP that is responsible for recommending MCLs in drinking water. This recommended MCL served as the basis for the interim specific ground water quality standard for PFNA of 10 ng/L established by NJDEP on November 25, 2015. The interim specific ground water quality standard was replaced by a permanent, specific ground water quality standard of the same value (10 ng/L) under amendments to the Ground Water Quality Standards regulations adopted on January 16, 2018. Concurrent adoption of amendments to the Discharge of Petroleum and Other Hazardous Substances regulations (N.J.A.C. 7:1E) added PFNA to the List of Hazardous Substances. For more information, visit: Ground Water Quality Standards (GWQS).

On August 7, 2017, NJDEP proposed amendments to the Safe Drinking Water Act Rules that include establishing a new MCL for PFNA of 13 ng/L. On September 4, 2018, the NJDEP adopted the MCL and concurrently amended the Ground Water Quality Standard for PFNA to 13 ng/L.

Perfluorooctanoic Acid (PFOA):

In 2007, NJDEP issued a preliminary drinking water guidance level for perfluorooctanoic acid (PFOA) of 40 nanograms per liter (ng/L). In March of 2017, the DWQI recommended an MCL for PFOA of 14 ng/L. In October 2017, the NJDEP issued an updated drinking water guidance value for PFOA and announced that the NJDEP would accept the DWQI recommended PFOA MCL of 14 ng/L.

On March 13, 2019, NJDEP established an interim specific ground water quality standard for PFOA of 0.01 ug/L (10 ng/L). The interim specific ground water quality standard for PFOA became effective upon posting to the "Table of Interim Specific Ground Water Quality Criteria (ISGWQC), Interim PQLs (IPQLs), and Interim Specific Ground Water Quality Standards (ISGWQS) for Constituents in Class II-A Ground Water" on the NJDEP website at https://www.nj.gov/dep/wms/bears/gwqs.htm.

For more information, visit: Perfluorooctanoic Acid (PFOA) in Drinking Water.

Perfluorooctanesulfonic Acid (PFOS):

In November 2017, the DWQI published draft recommendations for a health-based MCL for PFOS of 13 ng/L. In June of 2018, the NJDEP accepted the DWQI recommended PFOS MCL of 13 ng/L.

On March 13, 2019, NJDEP established an interim specific ground water quality standard for PFOS of 0.01 ug/L (10 ng/L). The interim specific ground water quality standard for PFOS became effective upon posting to the "Table of Interim Specific Ground Water Quality Criteria (ISGWQC), Interim PQLs (IPQLs), and Interim Specific Ground Water Quality Standards (ISGWQS) for Constituents in Class II-A Ground Water" on the NJDEP website at https://www.nj.gov/dep/wms/bears/gwqs.htm.

Additional Resources

General Information:

- New Jersey Drinking Water Quality Institute
- US Environmental Protection Agency
- Interstate Technology & Regulatory Council (ITRC)
- Association of State and Territorial Solid Waste Management Officials, Inc. (ASTSWMO) webpage for PFAS
- ASTSWMO Perfluorooctanoic Acid (PFOA) & Perfluorooctane Sulfonate (PFOS) Information Paper
- Northeast Waste Management Officials Association (NEWMOA) - Past and future PFAS presentations

NJDEP PFAS Studies

- Determination of Perfluorooctanoic Acid in Aqueous Samples (2007)
- Occurrence of Perfluorinated Chemicals in Untreated NJ Drinking Water (2014)
- Identification of Perfluorinated Carboxylic Acids (PFCAs) in the Metedeconk River Watershed (2016)
- Investigation of Levels of Perfluorinated Compounds in New Jersey Fish, Surface Water, and Sediment (2018)

Some manufacturers that used the long-chain PFAS have replaced these chemicals with shorter-chained PFAS. For more information, please see:

- Legacy and Emerging Perfluoroalkyl Substances Are Important Drinking Water Contaminants in the Cape Fear River Watershed of North Carolina

Health information for PFAS:

- NJDOH Fact Sheet for PFCs in Drinking Water
- Agency for Toxic Substances and Disease Registry (ATSDR): Per- and Polyfluoroalkyl Substances and Your Health

Other Resources:

- Detection of Poly and Perfluoroalkyl Substances in US Drinking Water Linked to Industrial Sites, Military Fire Training areas and Waste Water Treatment Plants
- Department of the Navy's strategy to manage PFAS (including the investigation of AFFF and cleanup of PFOA/PFOS releases)

https://www.nj.gov/dep/srp/emerging-contaminants/