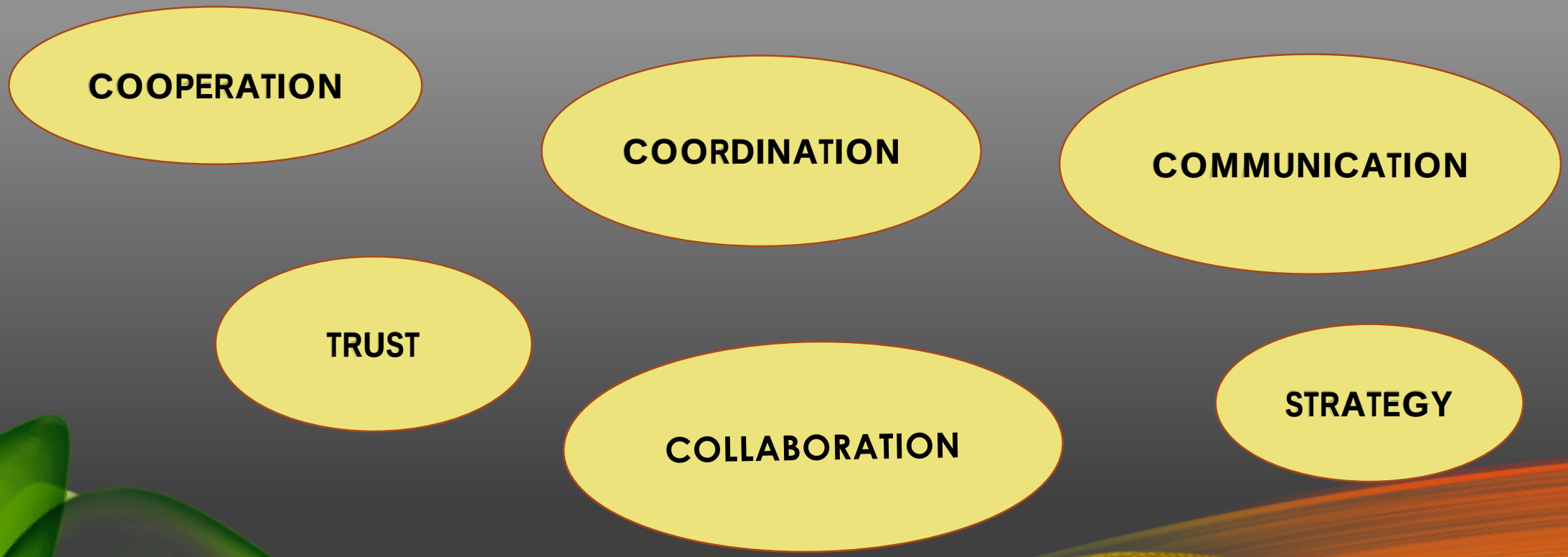
RESPONDING TO AN EMERGING CONTAMINANT IN GREENWICH



Caroline Calderone Baisley
Director of Health

8/28/2019

CONNECTION TO THE COMMUNITY

Diverse, well educated affluent mid-sized community with population of 62,359 (2016) located in Fairfield County

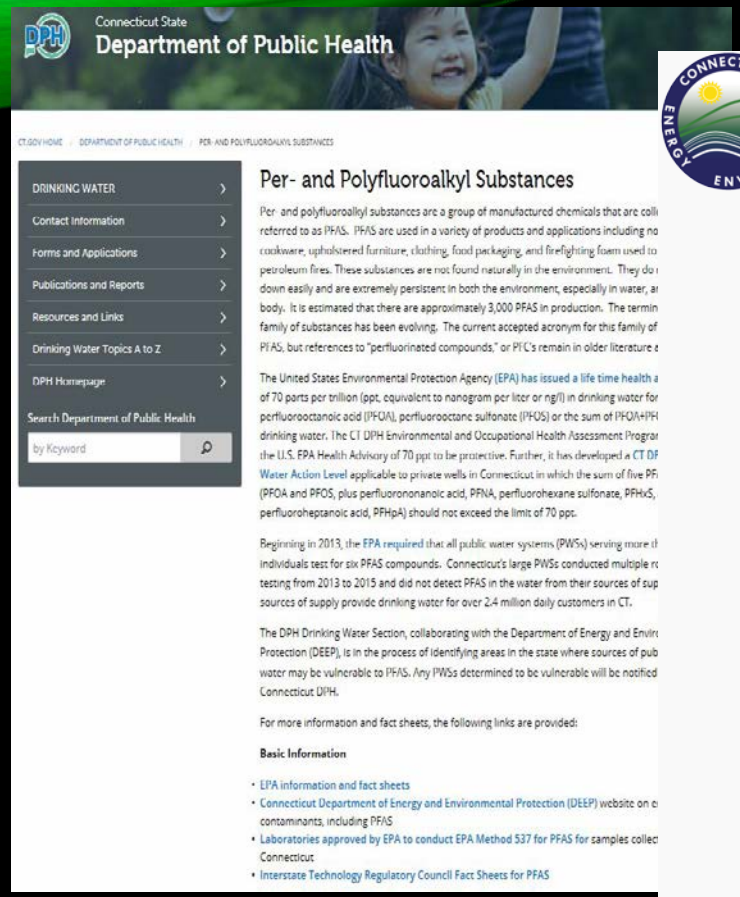
Full time government and agencies (not all inclusive): Health, Fire, Police, Wetlands/Conservation, Parks and Recreations, EMS by contract

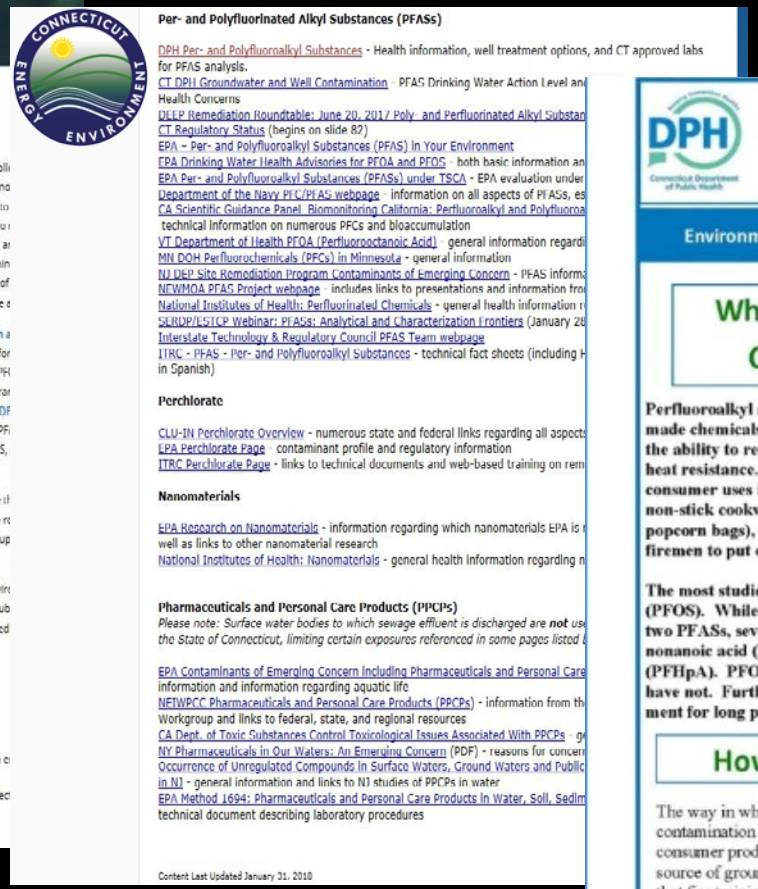
Drinking Water: Aquarion Water Company and approximately 3,000 private wells

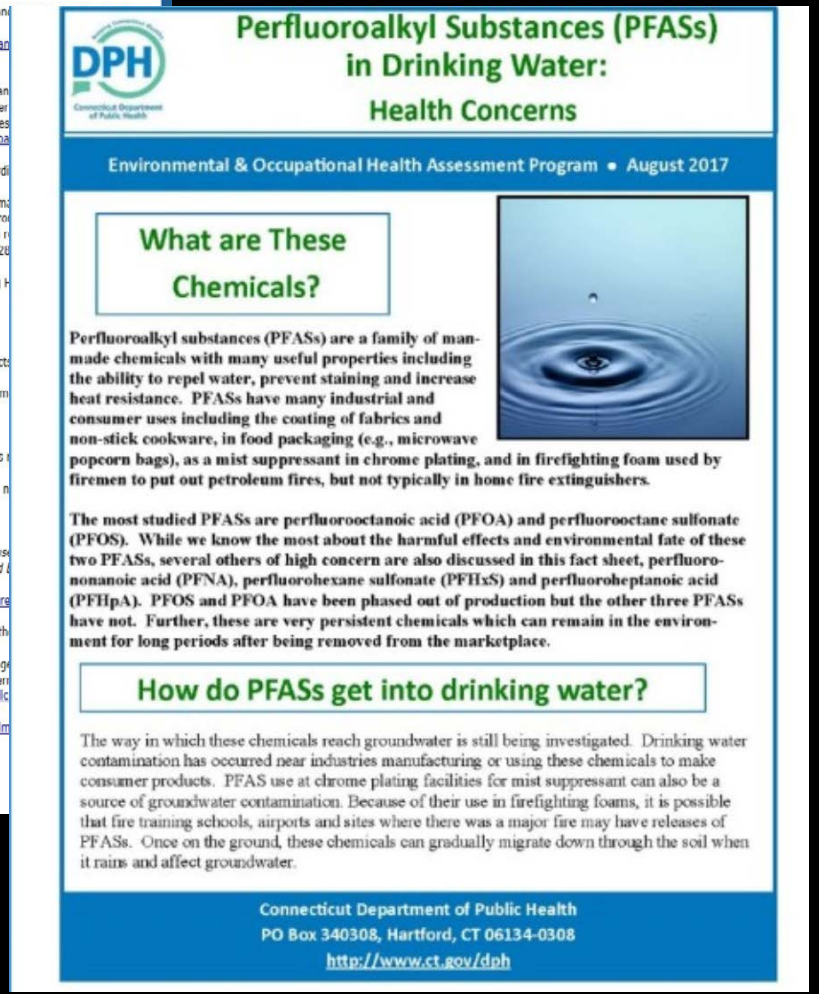
STATE STRATEGY

CT DPH Worked With Dept. of Energy And Environmental Protection (DEEP) Remediation on PFAS Strategy

- Identify areas where PFAS may have been released to the environment
- Identify public and private drinking water supplies that may be vulnerable to PFAS contamination
- Developed webpages (DWS and DEEP) and public education
- DPH Developed action level for PFAS (sum of 5 PFAS)
- Developed well water sampling criteria
- Proposed action steps if PFAS identified


Connecticut State
Department of Public Health
CT.GOV HOME / DEPARTMENT OF PUBLIC HEALTH / PER- AND POLYFLUOROALKYL SUBSTANCES
DRINKING WATER
Contact Information
Forms and Applications
Publications and Reports
Resources and Links
Drinking Water Topics A to Z
DPH Homepage
Search Department of Public Health
by Keyword
Per- and Polyfluoroalkyl Substances
Per- and polyfluoroalkyl substances are a group of manufactured chemicals that are colle
referred to as PFAS. PFAS are used in a variety of products and applications including no
cookware, upholstered furniture, clothing, food packaging, and firefighting foam used to
petroleum fires. These substances are not found naturally in the environment. They do
down easily and are extremely persistent in both the environment, especially in water, a
body. It is estimated that there are approximately 3,000 PFAS in production. The termin
family of substances has been evolving. The current accepted acronym for this family of
PFAS, but references to "perfluorinated compounds," or PFC's remain in older literature
The United States Environmental Protection Agency (EPA) has issued a life time health
of 70 parts per trillion (ppt, equivalent to nanogram per liter or ng/l) in drinking water for
perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS) or the sum of PFOA+PF
drinking water. The CT DPH Environmental and Occupational Health Assessment Progra
the U.S. EPA Health Advisory of 70 ppt to be protective. Further, it has developed a CT DP
Water Action Level applicable to private wells in Connecticut in which the sum of five PF
(PFOA and PFOS, plus perfluorononanoic acid, PFNA, perfluorohexane sulfonate, PFHxS,
perfluoroheptanoic acid, PFHpA) should not exceed the limit of 70 ppt.
Beginning in 2013, the EPA required that all public water systems (PWSs) serving more t
individuals test for six PFAS compounds. Connecticut's large PWSs conducted multiple r
testing from 2013 to 2015 and did not detect PFAS in the water from their sources of sup
sources of supply provide drinking water for over 2.4 million daily customers in CT.
The DPH Drinking Water Section, collaborating with the Department of Energy and Envir
Protection (DEEP), is in the process of identifying areas in the state where sources of pub
water may be vulnerable to PFAS. Any PWSs determined to be vulnerable will be notified
Connecticut DPH.
For more information and fact sheets, the following links are provided:
Basic Information
EPA information and fact sheets
Connecticut Department of Energy and Environmental Protection (DEEP) website on
contaminants, including PFAS
Laboratories approved by EPA to conduct EPA Method 537 for PFAS for samples collec
Connecticut
Interstate Technology Regulatory Council Fact Sheets for PFAS


Per- and Polyfluorinated Alkyl Substances (PFASs)
DPH Per- and Polyfluoroalkyl Substances - Health information, well treatment options, and CT approved labs for PFAS analysis.
CT DPH Groundwater and Well Contamination - PFAS Drinking Water Action Level and Health Concerns
DEEP Remediation Roundtable: June 20, 2017 Poly- and Perfluorinated Alkyl Substan
CT Regulatory Status (begins on slide 82)
EPA – Per- and Polyfluoroalkyl Substances (PFAS) In Your Environment
EPA Drinking Water Health Advisories for PFOA and PFOS - both basic information an
EPA Per- and Polyfluoroalkyl Substances (PFASs) under TSCA - EPA evaluation under
Department of the Navy PFC/PFAS webpage - information on all aspects of PFASs, es
CA Scientific Guidance Panel, Biomonitoring California: Perfluoroalkyl and Polyfluoroa
technical information on numerous PFCs and bioaccumulation
VT Department of Health PFOA (Perfluorooctanoic Acid) - general information regard
MN DOH Perfluorochemicals (PFCs) in Minnesota - general information
NJ DEP Site Remediation Program Contaminants of Emerging Concern - PFAS inform
NEWMOA PFAS Project webpage - includes links to presentations and information fro
National Institutes of Health: Perfluorinated Chemicals - general health information
SERDP/ESTCP Webinar: PFASs: Analytical and Characterization Frontiers (January 26
Interstate Technology & Regulatory Council PFAS Team webpage
ITRC - PFAS - Per- and Polyfluoroalkyl Substances - technical fact sheets (including H
in Spanish)
Perchlorate
CLU-IN Perchlorate Overview - numerous state and federal links regarding all aspects
EPA Perchlorate Page - contaminant profile and regulatory information
ITRC Perchlorate Page - links to technical documents and web-based training on rem
Nanomaterials
EPA Research on Nanomaterials - information regarding which nanomaterials EPA is
well as links to other nanomaterial research
National Institutes of Health: Nanomaterials - general health information regarding
Pharmaceuticals and Personal Care Products (PPCPs)
Please note: Surface water bodies to which sewage effluent is discharged are not us
the State of Connecticut, limiting certain exposures referenced in some pages listed
EPA Contaminants of Emerging Concern including Pharmaceuticals and Personal Care
information and information regarding aquatic life
NETWPCC Pharmaceuticals and Personal Care Products (PPCPs) - information from th
Workgroup and links to federal, state, and regional resources
CA Dept. of Toxic Substances Control Toxicological Issues Associated With PPCPs - g
NY Pharmaceuticals in Our Waters: An Emerging Concern (PDF) - reasons for concer
Occurrence of Unregulated Compounds in Surface Waters, Ground Waters and Public
in NJ - general information and links to NJ studies of PPCPs in water
EPA Method 1694: Pharmaceuticals and Personal Care Products in Water, Soil, Sedim
technical document describing laboratory procedures
Content Last Updated January 31, 2018


Perfluoroalkyl Substances (PFASs) in Drinking Water:
Health Concerns
Environmental & Occupational Health Assessment Program • August 2017
What are These Chemicals?
Perfluoroalkyl substances (PFASs) are a family of man-made chemicals with many useful properties including the ability to repel water, prevent staining and increase heat resistance. PFASs have many industrial and consumer uses including the coating of fabrics and non-stick cookware, in food packaging (e.g., microwave popcorn bags), as a mist suppressant in chrome plating, and in firefighting foam used by firemen to put out petroleum fires, but not typically in home fire extinguishers.
The most studied PFASs are perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). While we know the most about the harmful effects and environmental fate of these two PFASs, several others of high concern are also discussed in this fact sheet, perfluorononanoic acid (PFNA), perfluorohexane sulfonate (PFHxS) and perfluoroheptanoic acid (PFHpA). PFOS and PFOA have been phased out of production but the other three PFASs have not. Further, these are very persistent chemicals which can remain in the environment for long periods after being removed from the marketplace.
How do PFASs get into drinking water?
The way in which these chemicals reach groundwater is still being investigated. Drinking water contamination has occurred near industries manufacturing or using these chemicals to make consumer products. PFAS use at chrome plating facilities for mist suppressant can also be a source of groundwater contamination. Because of their use in firefighting foams, it is possible that fire training schools, airports and sites where there was a major fire may have releases of PFASs. Once on the ground, these chemicals can gradually migrate down through the soil when it rains and affect groundwater.
Connecticut Department of Public Health
PO Box 340308, Hartford, CT 06134-0308
http://www.ct.gov/dph

PFAS
STATE AND LOCAL COLLABORATION

- **NYS Westchester County identifies PFAS contamination in NY in public drinking water wells on NYS/CT border**

- **DPH and DEEP brief Greenwich Department of Health (GHD) about possible PFAS migration into Greenwich public/private well water supplies**

PFAS
STATE AND LOCAL COMMUNICATION

- Direct support, involvement and direction from DPH Commissioner's Office
- Focus on the health of the community
- Communication to public/private well water supply owners
- Agreed upon community outreach forum

PFAS
STATE AND LOCAL COOPERATION

- Working with differences between federal and state and local strategies
- Timing of correspondence
- Scheduling well water sample collection
- Initiating press releases
- Communicating with elected officials, boards, community groups, town agencies

Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION
79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

April 26, 2018

NEWS RELEAS

FOR INFORMATION CONTACT:

April 13, 2018
For Immediate Release

Greenwich, CT – The Connecticut Department of Public Health (DPH), in cooperation with Department of Environmental Protection (DEEP) and the U.S Environmental Protection initiated a survey to determine if polyfluoroalkyl substances (PFAS) migrated into the grou servicing public and private wells in the northwest section of Greenwich. PFAS, which are made chemicals, were detected in several public well water supplies in a nearby area within t As a result, the DPH, DEEP and EPA initiated precautionary sampling of drinking water at drinking water systems and eight (8) private wells in Greenwich during the month of Febr drinking water samples were analyzed for six PFAS.

NEWS RELEASE

FOR INFORMATION CONTACT:
Caroline Calderone Bailey
Director of Health
Tel [203] 622-7836
or
Michael S. Long
Division of Environmental Services
Tel. [203] 987-1001

May 8, 2018
For Immediate Release

Planned Information Sessi
Public/Priv

Greenwich, CT – On Monday,
Connecticut Department of Publ
Protection (DEEP) and the Green
information session designed to a
sampling conducted by DPH and
Time Assembly of God located
agency representatives is schedul

CAROLINE CALDERONE BAILEY
DIRECTOR OF HEALTH

DEPARTMENT OF HEALTH

[Date]
[Homeowner's Name]
[Street Address]
Greenwich, CT [Zip Code]

Certified Mail

Re: Testing for Possible Perfluoroalkyl Substances (PFAS) in Greenwich Private Drinking Water Wells

Dear [Homeowner's Name]:

CAROLINE CALDERONE BAILEY
DIRECTOR OF HEALTH

DEPARTMENT OF HEALTH

[Date]
[Administrative Contact]
[Facility Name]
[Street Address]
Greenwich, CT [Zip Code]

Re: Testing for Possible Perfluoroalkyl Substances (PFAS) in CT Public Drinking Water Suppl

Dear Administrative Contact:

The purpose of this correspondence is to notify you that the State Department of Public Health (DP Drinking Water Supply Section (DWS) will be coordinating the collection of water samples from y public drinking water supply. The attached letter CT DPH DWS outlines this effort.

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

Raul Pino, M.D., M.P.H.
Commissioner

Dannel P. Malloy
Governor
Nancy Wyman
Lt. Governor

Drinking Water Section

January 29, 2018

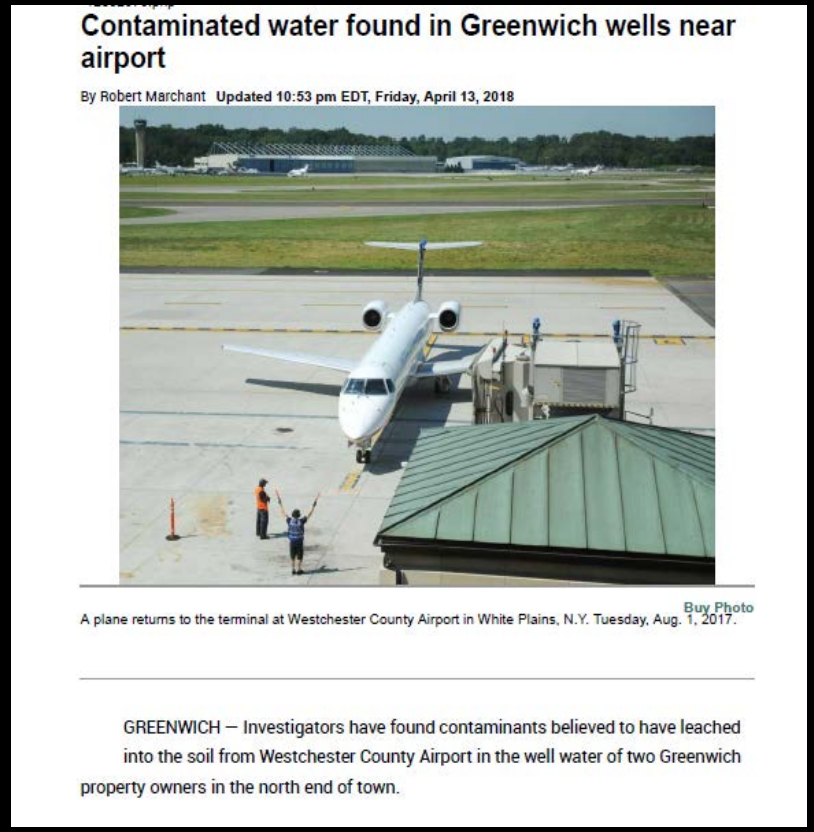
Greenwich, CT 06831

Re: Testing for Perfluoroalkyl Substances in Public Drinking Water Supplies on the New York Border

This letter is to inform you that the Department of Public Health (CTDPH) Drinking Water Section (DWS) is sampling public water supply wells in a section of Greenwich along the New York border because of recent detections of perfluoroalkyl substances (PFAS) in a nearby area. The CTDPH DWS is collaborating with the CTDPH Katherine A. Kelley State Public Health Laboratory to provide free water sample collection for your public drinking water sources of supply. We have also arranged to have the water samples analyzed at no cost to you. We would

ORGANIZED STRATEGY FOR TEAM APPROACH

- **Handled all safety and security matters with local police**
- **Available for media inquiries and local resident questions**
- **Understands community's sensitivity due to historic contamination issues**
- **Awareness of community/political mistrust of Westchester County Airport**



Contaminated water found in Greenwich wells near airport

By Robert Marchant Updated 10:53 pm EDT, Friday, April 13, 2018

Buy Photo

A plane returns to the terminal at Westchester County Airport in White Plains, N.Y. Tuesday, Aug. 1, 2017.

GREENWICH – Investigators have found contaminants believed to have leached into the soil from Westchester County Airport in the well water of two Greenwich property owners in the north end of town.

ORGANIZED STRATEGY FOR TEAM APPROACH

- Facilitated by the Greenwich Department of Health
- Held in the impacted area
- Attendees were free to circulate
- Opportunity for confidential consultation
- Team presentation at the end of information session
- Team members stayed to answer questions

greenwich time https://www.greenwichtime.com/local/article/Residents-ask-questions-on-well-water-in-12914107.php

Residents ask questions on well water in northwestern Greenwich

By Robert Marchant Updated 6:00 pm EDT, Tuesday, May 15, 2018

Residents of the King Street area meet with health and water-safety officials at an informational event at the Harvest Time Church.

LESSON LEARNED/RECOMMENDATIONS

- Need to communicate and collaborate to deliver a common message
- State and local agencies need to gain trust of each other
- Local health lead for local communication
- Local health is known and trusted by community residents.

LESSONS LEARNED/RECOMMENDATIONS

- Public information/community outreach sessions should be conducted.

- Guidance, protection and assistance to local towns and cities from state government is needed

- Legislative action may be needed for items such as:
  - Reimbursement to communities for PFAS contamination
  - Legal action
  - Adoption of requirements pertaining to PFAS

THANK YOU!