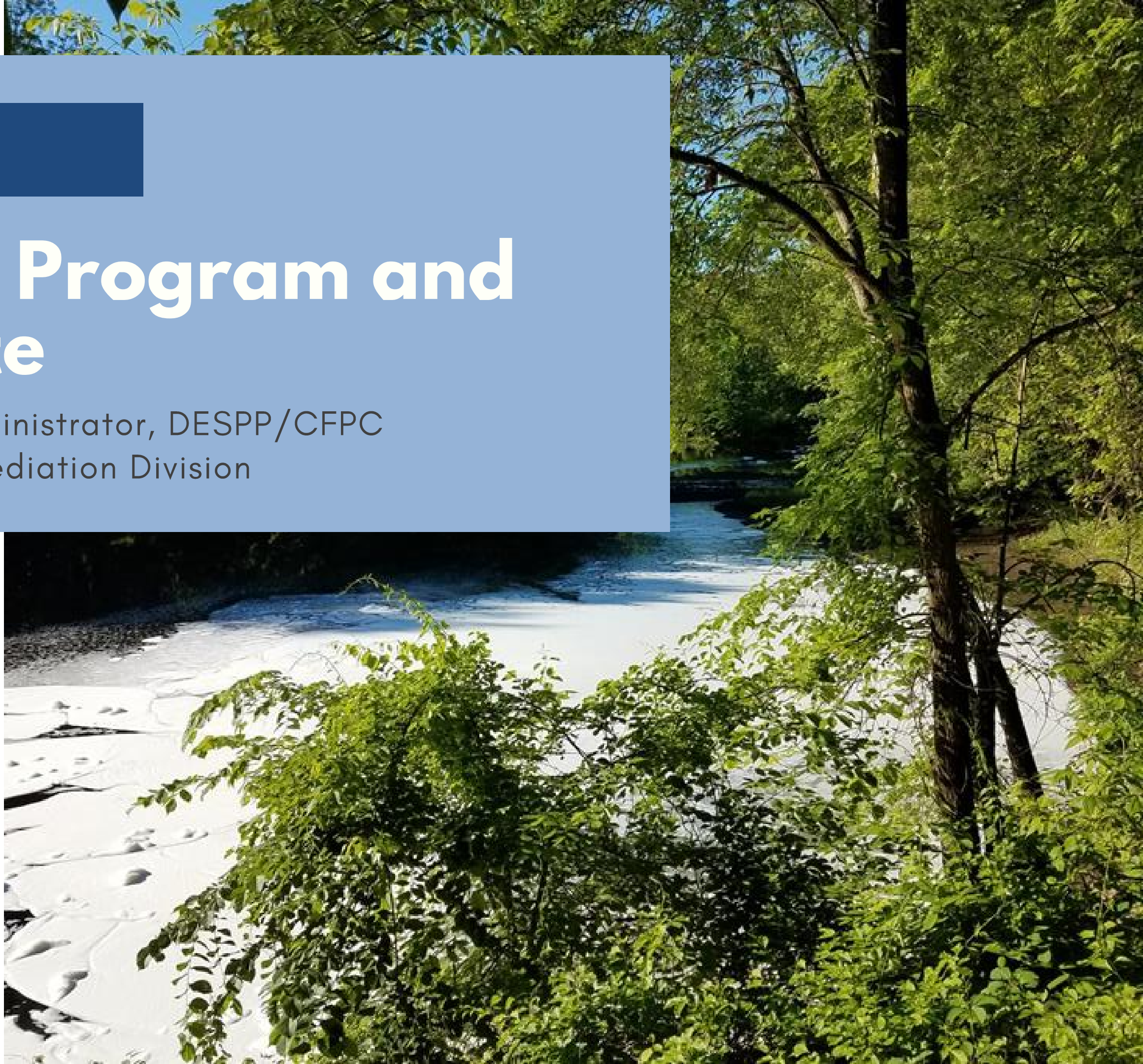


Informational Briefing – 7/28/2021

AFFF Take-Back Program and PA 21-191 Update

Speakers: Jeff Morrisette, State Fire Administrator, DESPP/CFPC
Ray Frigon, Shannon Pociu, CT DEEP Remediation Division



AGENDA

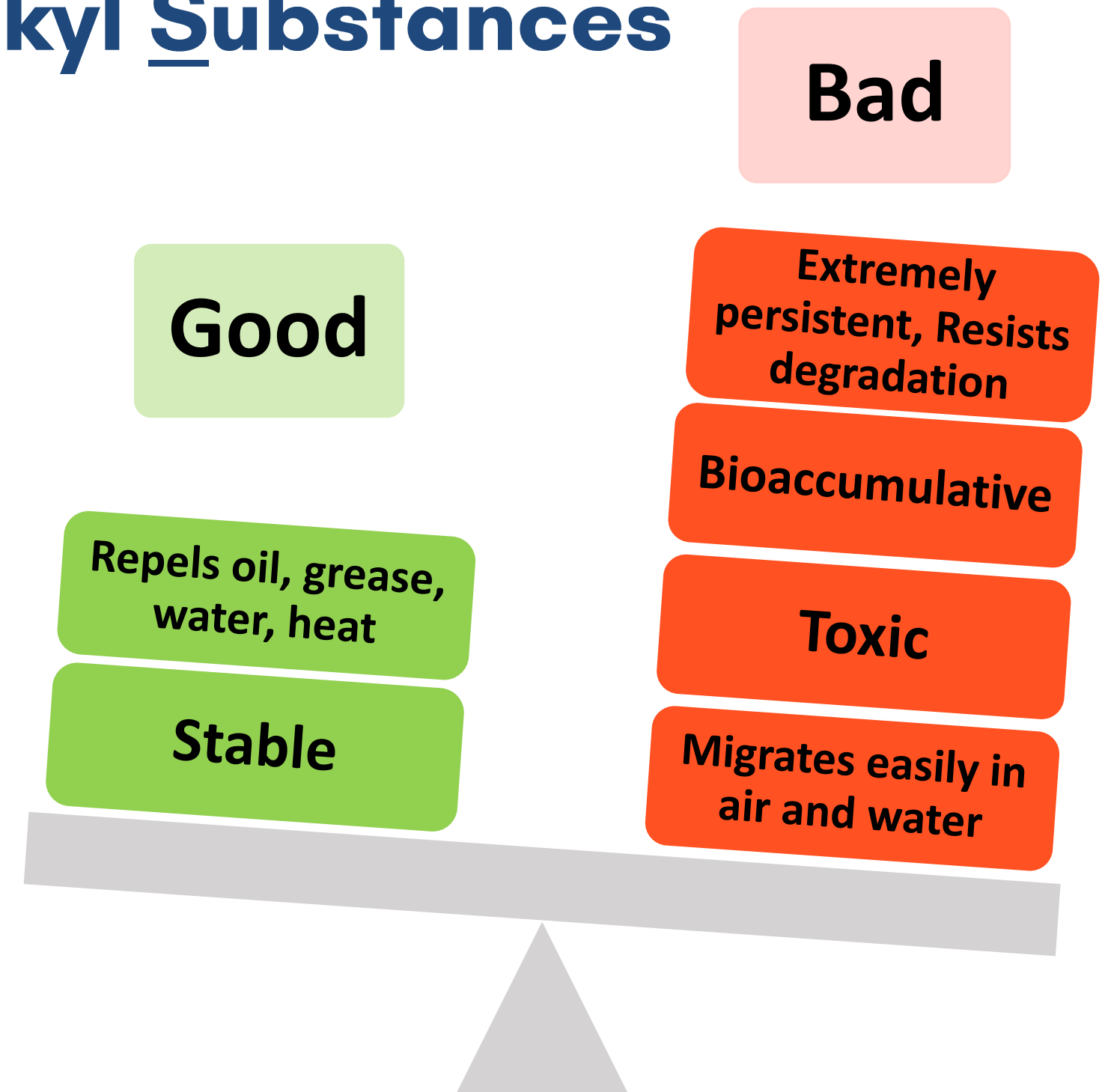
- What are PFAS, and why are they a problem?
- PFAS and AFFF
- New Legislation – Public Act 21-191
- AFFF Take-Back Program
- Apparatus Decontamination
- Questions



What are PFAS?

PFAS = Per- and Polyfluorinated Alkyl Substances

- Family of >5,000 chemicals
- Widely used in industrial processes and consumer products since 1950s
- Common products
 - Non-stick cookware
 - Grease-resistant food packaging
 - Waterproof apparel
 - Stain-resistant fabrics & carpet
 - **Aqueous Film-Forming Foam (AFFF)**



PFAS Uses and Sources



Problems Caused by PFAS

Health effects on multiple organs and phases of life

Present in human blood worldwide

Polluted drinking water supplies worldwide – now issue in US

Ubiquitous discovery in the environment

Replacement chemicals also a problem

Major PFAS Incidents in CT

Farmington River, June 2019



Rainbow Brook, October 2019



AFFF

- **ALL AFFF Contains PFAS**
- 1966 – AFFF patented for Class B fires (highly flammable or combustible liquids/hydrocarbons)
- 1969 – DoD military specification required PFOS
 - Spreads over the surface of flammable liquids and creates a film
 - Blankets the fuel, cools fuel surface, prevents re-ignition by suppressing flammable vapors



Where is AFFF Used?

- Military bases
- Airports
- Crash sites
- Oil terminals and refineries
- Chemical plants
- Firefighting training facilities
- Large petroleum fires
- Fire suppression systems



AFFF Manufacturing History

- 1960s – 2000s – 7 AFFF manufacturers
 - 3M, Ansul, National Foam, Angus, Chemguard, Buckeye, Fire Service Plus, Inc.
 - All contain PFAS, especially PFOS (a specific chemical).
- Early 2000s – 2016 – AFFF reformulated to stop use of PFOS and PFOA (C8) and chemicals that breakdown to form them.
 - 3M phased out production from 2000–2002.
 - C8 PFAS replaced with shorter-chain and fluorotelomer PFAS (C6).
 - Replacement PFAS are still problematic to human health and the environment.
- Now – Effective Fluorine-Free Foams (F3) are available.



AFFF and CT Fire Departments

- State Regional Foam Trailer Program
 - Started in 2002
- 8 Trailers & Host Communities:
 - Hartford, New Haven, Willington, Waterbury, Winsted, Fairfield, Norwich, Danbury
- National Foam – Universal Gold 1%/3% AR-AFFF
 - Contains C6 Fluorotelomers = PFAS



AFFF and CT Fire Departments

- AFFF Advisory Bulletin – June 2019
 - Discontinue use of all AFFF manufactured before 2003
 - Use modern C6 AFFF only when tactically necessary
 - Discontinue use of AFFF for training
 - Notify DEEP Emergency Dispatch when AFFF is deployed
- 860-424-3338



**Advisory Information for
Aqueous Film Forming Foam (AFFF)
Containing Per- and Polyfluorinated Alkyl Substances (PFAS)
June 2019**

Department of Energy and Environmental Protection
Department of Emergency Services and Public Protection, Commission on Fire Prevention and Control

Background

Recent toxicological studies have indicated there is a health concern when people are exposed to Per- and Polyfluoroalkyl Substances (PFAS), of which there are over 4,000 PFAS chemical compounds in manufacture. PFAS are very stable and impart resistance from water, oil, grease, dirt, and heat to items on which they are applied. They have wide-ranging applications, such as in grease-resistant microwave popcorn bags and pizza boxes, waterproof clothing and boots, carpets that resist stains, and pipes and wires that resist corrosion. Additionally, they are excellent in resisting heat, which is why there are used in certain firefighting foams (Ross, R.).

Because of their stability, PFAS don't break down in the environment or in the human body, and that may cause health problems, such as low infant birth weights, effects on the immune system, cancer (for PFOA), and thyroid hormone disruption (for PFOS). (Ross, R.) Two of the most studied PFAS are perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), which are considered "long-chain" PFAS. As of 2015, neither PFOA nor PFOS are manufactured in the U.S., due to health and environmental concerns, according to the rules of the EPA's stewardship program for the substances, signed in 2006. However, other PFAS, including "short-chain," have been developed as replacements for PFOA and PFOS in manufacturing that are less well studied.

In May 2016, EPA issued a Lifetime Health Advisory for drinking water polluted with PFOA and PFOS, individually or together, of 70 parts per trillion (ppt) or nanograms per liter (ng/L), because of health effects. That's the equivalent of about 70 drops in an Olympic-sized swimming pool. Currently, EPA is evaluating if PFOA and PFOS should be formally regulated in public drinking water supplies nationwide and is beginning the process to list PFOA and PFOS as hazardous substances under Superfund law. Other states have already set enforceable drinking water standards or more restrictive advisories in advance of EPA, including those in New England, New York, and New Jersey. In Connecticut, the Department of Public Health established a Drinking Water Action Level of 70 ppt for the total of 5 PFAS chemicals – PFOA, PFOS, perfluorononanoic acid (PFNA), perfluoroheptanoic acid (PFHpA), and perfluorohexane sulfonate (PFHxS). However, state toxicologists are continuing to evaluate new health studies and may include other PFAS in the Action Level or lower the target level in the future.

PFAS and Firefighting Foam

Firefighting foam can be broken down into two main categories: Class A and Class B.

Class A foams do not contain PFAS and are safe to use for their intended purpose. They are covered under NFPA 1150 (Standard on Foam Chemicals for Fires in Class A Fuels). The intended purpose is to reduce the surface tension of the water to allow for more water to burning material surface contact, which allows for faster fire extinguishment. There are no restrictions on the use of Class A foams.

Class B foams often contain PFAS, in addition to many different natural and chemical precursors. These different types of foams can be divided into numerous tactical categories with respect to expansion rates (low, medium and high) and compatibility with different types of fuel (polar and non-polar flammable liquids). **Importantly, all Aqueous Film Forming Foam (AFFF) products contain PFAS** (ITRC 2018). So far as this guidance document is concerned, the focus is on PFAS-containing AFFF, Alcohol Resistant AFFF (AR-AFFF), and fluoroprotein foam; the foam's potential to be a hazard to

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Public Act 21-191

AN ACT CONCERNING THE USE OF PERFLUOROALKYL OR POLYFLUOROALKYL SUBSTANCES IN CLASS B FIREFIGHTING FOAM.

- Signed July 13, 2021
- 2 Sections:
 - Section 1: AFFF provisions
 - Section 2: Bans in-state sale of PFAS-containing food packaging beginning Jan. 2024 – amends CGS Section 22a-255h (not being discussed here)

Public Act 21-191 – Breakdown

- Section 1(b)(1) – Bans testing and training with Class B foam containing PFAS (AFFF) upon bill passage (7/13/2021).
- Section 1(b)(2) – Bans use of AFFF for firefighting or vapor suppression after 10/1/2021, with exceptions, provided DEEP identifies an alternative by 7/1/2021.
 - Alternative is National Foam Universal^{®F3} Green.
 - Other alternatives may be identified by DEEP in consultation with DESPP/CFPC.

Public Act 21-191 - Breakdown

- Section 1(b)(3) – Airports
 - Must immediately use mitigation measures to prevent releases of AFFF to the environment, using containment, treatment, and disposal.
 - Must phase out AFFF use/deployment systems by 10/1/2023.

- Section 1(b)(4) – AFFF Use Required by Federal Law allowed until either:
 - Federal law changes and prohibits use of AFFF, or
 - 1 year after change in Federal law no longer requiring AFFF use.

Public Act 21-191 - Breakdown

- Section 1(b)(5) – Extensions to comply with 10/1/2021 AFFF ban will be allowed for:
 - Chemical plants
 - Oil refineries
 - Terminal, storage, and distribution facilities for flammable liquids
- Must first apply to DEEP for 2-year extension.
 - Will need to provide:
 - ✓ Justification for request
 - ✓ Containment, treatment, and disposal measures for AFFF
 - Process being developed.

Public Act 21-191 - Breakdown

- Section 1(c) – DEEP shall develop or identify a Take-Back Program for municipal AFFF by 10/1/2021
 - Currently underway
- Section 1(d) – Provisions may be enforced by DEEP within available appropriations.

AFFF TAKE-BACK PROGRAM

- Collaborative effort between DEEP & CFPC, supported by \$2M bond
 - ✓ **PFAS-free foam selected** by CFPC with DEEP input: Feb. 5, 2021
 - ✓ **Take-Back Program initiated** for state/municipal AFFF concentrate (est. 40,000 gal)
 - ✓ Phase 1 – Container collection and proper disposal: **Launched in May 2021**
 - ✓ Phase 2 – Decontamination study and clean trailers: **Summer 2021 (Underway)**
 - ❑ Phase 3 – Remove AFFF from and clean municipal apparatus: Begin Fall 2021



AFFF Container Collection

- For more information on AFFF container collection, contact:
 - FoamSurvey@ct.gov
 - 860-566-0690 – Jeff Morrisette
- Goal is to complete collection of containers by August 31, 2021.
- Draining and cleaning of apparatus will happen next.



Common Questions

- Why do we need to clean apparatus before using new foam?
- When/where will the cleaning happen?
- Where can my town/department purchase a safer alternative foam?
 - [Contract #21PSX0028AA](#) has been issued by the Department of Administrative Services for National Foam Universal F3 Green firefighting foam for the Department of Emergency Services and Public Protection, Commission on Fire Prevention and Control, all using State agencies, political subdivisions, and not-for-profits.
- Is new equipment needed to deploy Green foam?

QUESTIONS?

[CT CFPC Webpage](#)
[DEEP PFAS Webpage](#)
[PFAS Task Force Webpage](#)
[CT PFAS Action Plan](#)

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