

WELCOME

DEC - DOT&PF – DHSS

Dillingham Public Meeting February 26, 2019



INTRODUCTIONS

Department of Environmental Conservation

- Bill O'Connell, CPG – Environmental Program Manager
- Gretchen Caudill – Environmental Program Specialist

Department of Health and Social Services

- Kristin Bridges, PHD – Toxicologist & Environmental Public Health Program Manager

Department of Transportation

- Sammy Loud, C.M. - Development Specialist, PFAS Project Coordinator

Shannon & Wilson, Inc.

- Marcy Nadel – Geologist, Project Manager

WHAT WE WILL COVER TODAY

- Project Team Introductions
- PFAS Overview
- Health Effects of PFAS
- PFAS at the Dillingham Airport
- What to Expect Next
- Questions & Answers

PER-& POLYFLUOROALKYL SUBSTANCES (PFAS)

DEC

Dillingham Public Meeting February 26, 2019



PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

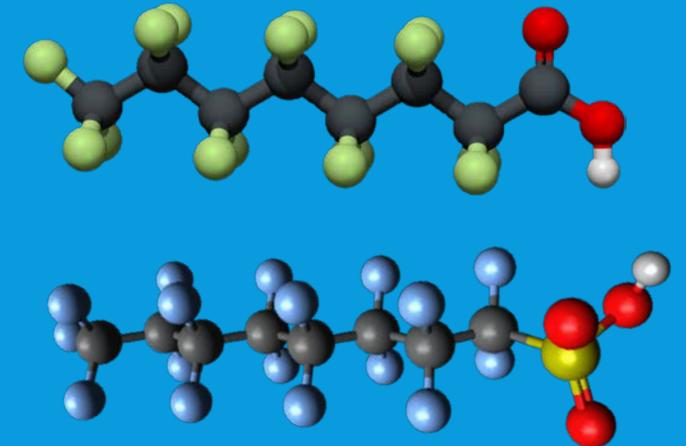
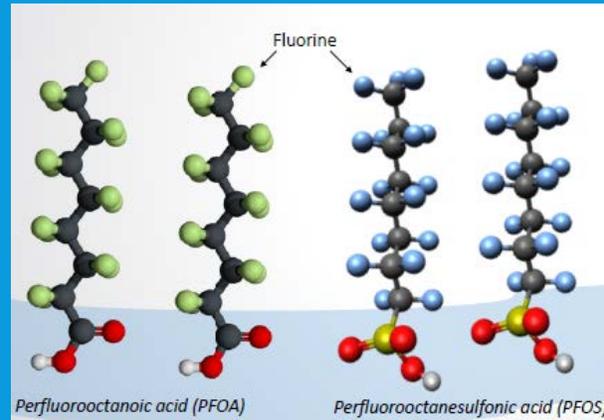
- What are PFAS
 - Family of around 5,000 chemicals
 - Does not break down easily
 - Builds up in humans and animals
 - Toxic

Products, sources and history

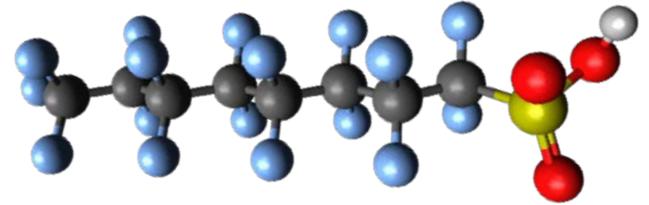
- Aqueous Film Forming Foam (AFFF)
Consumer Products- non-stick and stain-resistant products used in furniture, ski waxes, raingear, cooking utensils, paints, plastics, adhesives, personal care products (such as dental floss) convenience food packaging

Major Sources of Releases

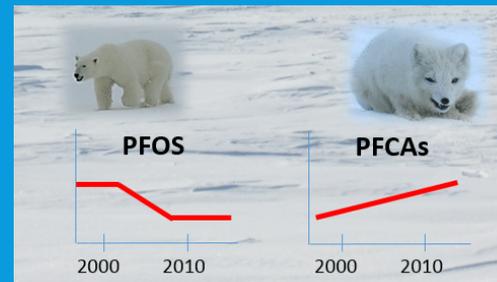
- Manufacturing
- Releases from fire suppression activities
- Wastewater Treatment Plants
- Landfills



PFAS IN THE ENVIRONMENT



- Occurrence of PFAS is widespread
- Can be transported atmospherically on airborne particulates
- Studies have detected PFAS near urban areas in both soil and groundwater at higher levels than in remote locations
- Almost every US citizen has detectable levels of PFAS (PFOS and PFOA) in their blood serum
- Have been found in blood of arctic animals including polar bears and arctic fox.

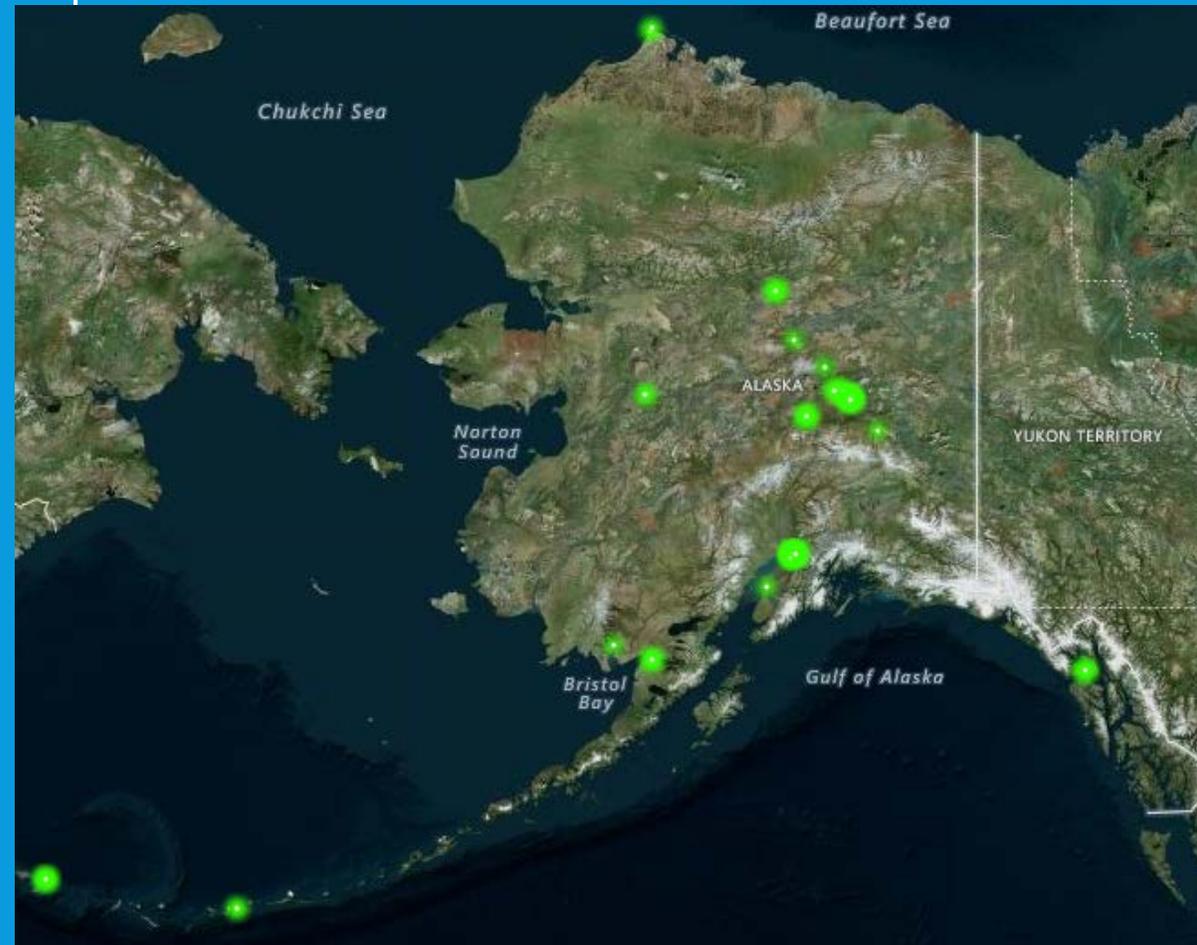


Emission Changes Dwarf the Influence of Feeding Habits on Temporal Trends of Per- and Polyfluoroalkyl Substances in Two Arctic Top Predators - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/Graphical-abstract_fig3_319880721 [accessed 1 Feb, 2019]

PFAS CONTAMINATION IN ALASKA

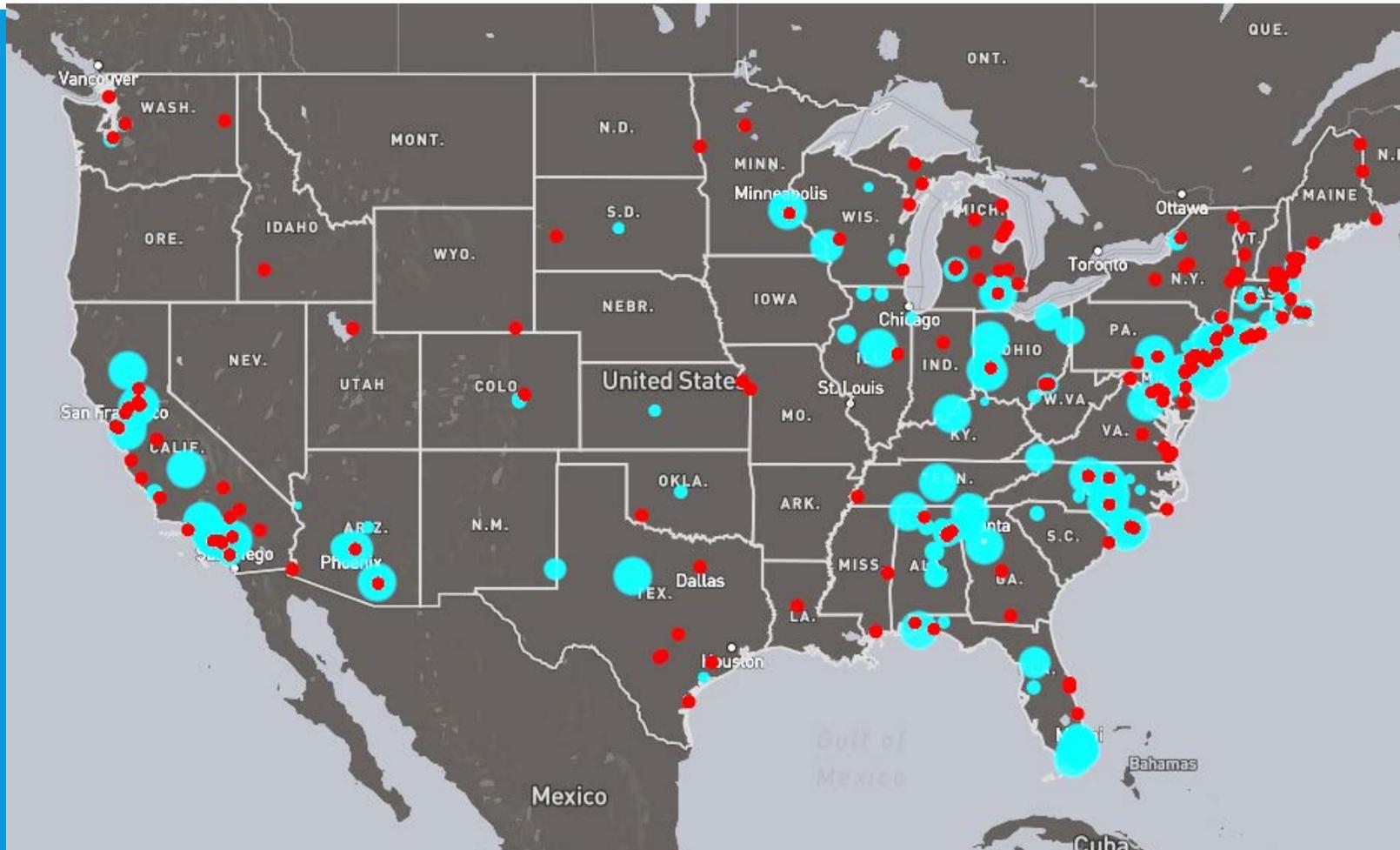
Communities with Drinking Water Impacts and Contaminated Sites

- Eielson/Moose Creek
- Fairbanks Municipal Fire Training Center
- Fairbanks International Airport
- North Pole
- Utqiagvik- Airport
- Gustavus Airport
- Dillingham - Airport
- King Salmon - Airport
- Eareckson Air Station, Shemya
- Galena



PFAS ACROSS THE COUNTRY

RED: CONTAMINATED SITES **BLUE:** EPA TAP WATER DETECTIONS



Credit: EWG and SSEHRI at Northeastern University (July 30, 2018)

State Action on
PFAS - DEC
DOT&PF DH&SS -
Alaska Forum on
the Environment
2019

WORKING TOGETHER

- Since PFAS was first discovered at DOT&PF managed airports, DEC, DHSS, DOA, and DOT&PF have coordinated to provide information to the public and provide temporary and permanent alternative drinking water to affected communities
- The agencies are currently involved in response actions in Fairbanks, Gustavus, Dillingham, King Salmon, Moose Creek, North Pole
- Other affected areas shown on previous slides also are being investigated by DEC

HEALTH EFFECTS OF PFAS

Dr. Kristin Bridges, PhD

Toxicologist

Environmental Public Health Program Manager

Division of Public Health



HOW CAN I BE EXPOSED TO PFAS?

CONTAMINATED FOOD



HOUSEHOLD PRODUCTS



CONTAMINATED WATER



PFAS OVER TIME

Production
begins 1940-
1950's



PFOS and PFOA
are 2 most used,
but > 5,000



Discovered:
Globally Distributed
Extremely Stable
Bioaccumulative
Toxic



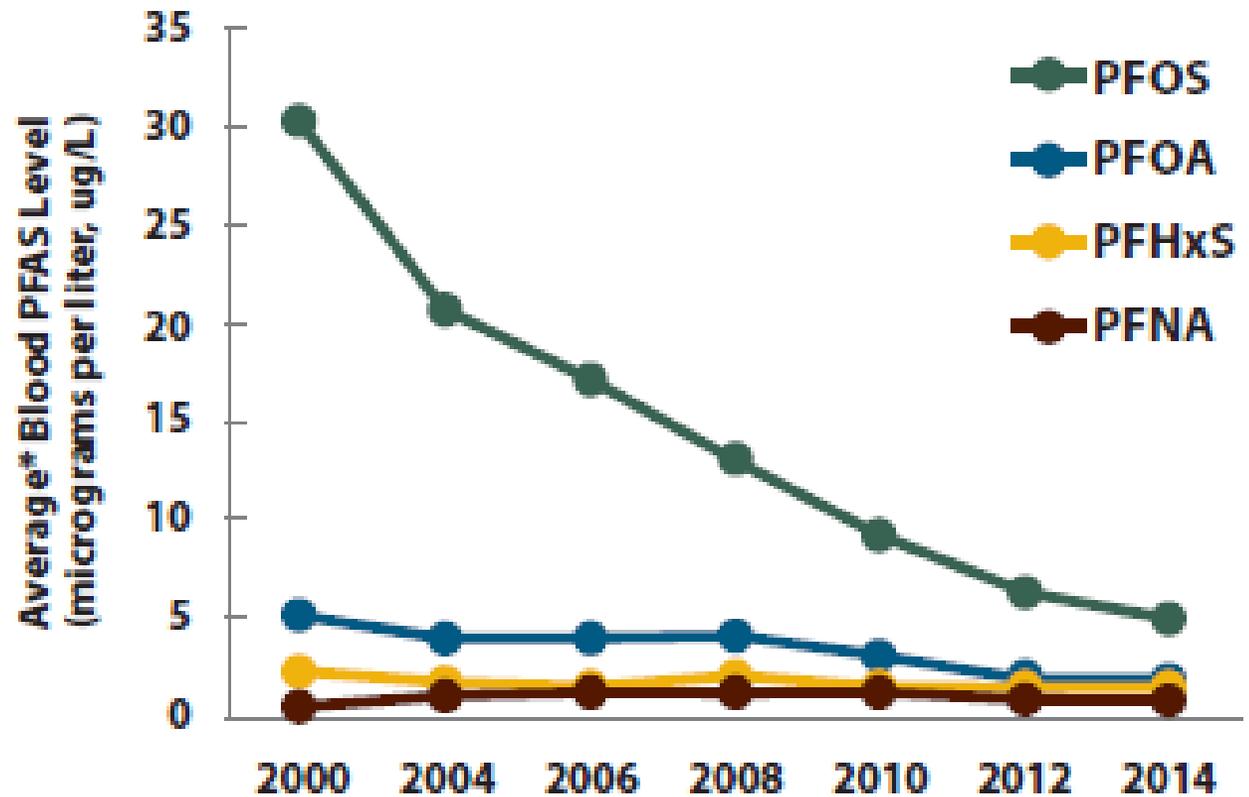
Phase out of
PFOA & PFOS in
2000s



PFAS IN THE POPULATION

Extremely stable in the environment and not well metabolized by humans

Widely distributed and found in nearly all people



WHAT ABOUT HEALTH EFFECTS?

PFAS ARE AN EMERGING CONTAMINANT AND THE SCIENCE IS STILL EVOLVING

CURRENT GUIDANCE IS BASED ON EVIDENCE FROM EPI STUDIES AND LABORATORY TOXICITY TESTS USING ANIMALS

EPIDEMIOLOGY STUDIES

- Results are from highly exposed communities/occupations
- Differences in environment, nutrition, demographic, and social factors influence health (can confound results)

ANIMAL TOXICITY STUDIES

- Use much higher exposure doses than is typical for humans
- Species differences in absorption, distribution, metabolism, excretion, development and physiology all influence sensitivity/toxicity

POTENTIAL HEALTH EFFECTS OF PFAS

Probable link between exposure to some PFAS and effects on several organs/body systems

- GASTROINTESTINAL SYSTEM: Ulcerative colitis
- LIVER: liver damage, abnormal fat metabolism, high cholesterol
- KIDNEY: kidney cancer and chronic kidney disease
- CARDIOVASCULAR SYSTEM: pregnancy-induced hypertension
- IMMUNE SYSTEM: decreased response to vaccines
- REPRODUCTIVE SYSTEM: testicular cancer and decreased fertility
- ENDOCRINE SYSTEM: thyroid disease
- DEVELOPMENT- reduced birth weight

It is still unclear how chronic, low-level PFAS exposure may impact human health

HOW DO I KNOW I'VE BEEN EXPOSED & HOW CAN I REMOVE PFAS FROM MY BODY?

- Because of the prevalence of PFAS in the environment and consumer products, almost all people and animals have more than one type of PFAS present in their blood.
- At this time, there are no medical interventions that will remove PFAS from the body. The best intervention is to stop the source of exposure.

SHOULD I GET A BLOOD TEST FOR PFAS?

- Federal and state health departments do not currently recommend blood testing for individuals, because:
 - Knowing how much PFAS is in your blood does not yet provide information about whether or not current health problems are related to PFAS exposure
 - Knowing how much PFAS is in your blood will not help your doctor predict or rule-out future health risks related to a PFAS exposure.

For those who still want a test:

- Contact your health care provider and insurance to find out if it is covered, and if your provider can collect a sample
- Tests will need to go to one of these laboratories:

Axys Analytical

1-888-373-0881

www.axysanalytical.com

NMS Laboratory

1-866-522-2206

www.nmslabs.com

Vista Analytical

1-916-573-1520

www.vista-analytical.com

IS IT SAFE TO SHOWER OR BATHE IN WATER >70 PPT?

Yes, because:

- Studies show that your skin is a good barrier against PFAS exposure
- You do not inhale enough PFAS during a shower to pose a health risk
- PFAS do not irritate the skin or eyes at the levels present in the well water

However:

- Incidental ingestion of water from all activities should be avoided, including while brushing teeth (especially young children)
- Regulations prohibit discharge of hazardous substances into the environment

SHOULD I CONTINUE TO BREASTFEED?

- [ATSDR](#) and DHSS both recommend that you continue to breastfeed
- The known benefits of breastfeeding outweigh the potential risks
- However, breastfeeding mothers should use a clean drinking water source

IS MY PRODUCE SAFE TO EAT?

- Studies show that plants absorb small amounts of PFAS from contaminated water and soil, but the amount absorbed depends on how much/what kind of PFAS are present, and the produce type
- Exposure to PFAS through vegetables not likely to be substantial compared to other exposure routes (e.g. drinking contaminated water)
- The health benefits of eating fresh fruits and vegetables cannot be ignored
- Just because food is purchased from a store doesn't mean it's free of PFAS



SUMMARY OF RECOMMENDATIONS

If water contains 70 ppt PFAS or more:

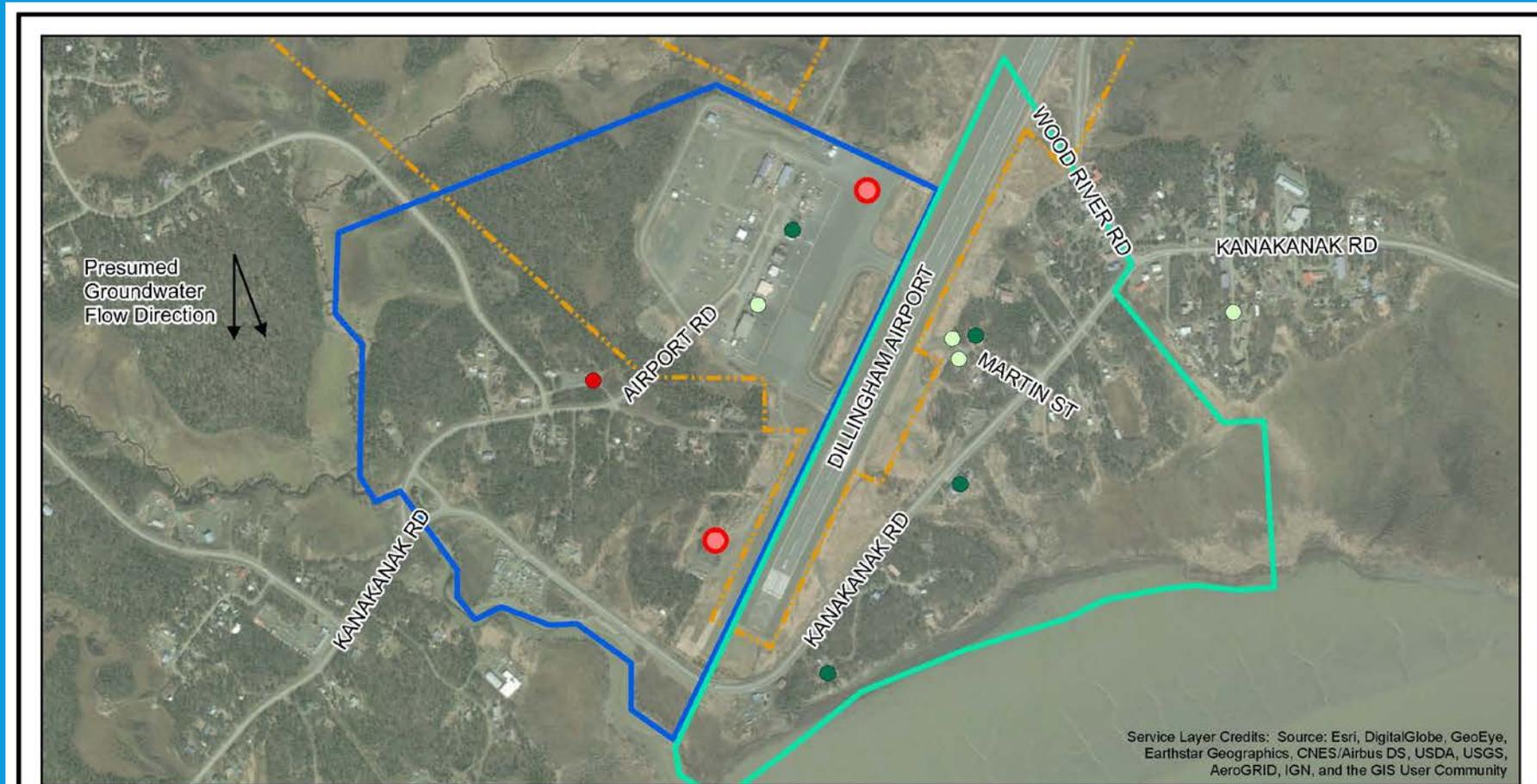
- Do not drink it
- Do not use it to prepare baby formula
- Do not give it to pets or animals
- Do not use it to brush your teeth
- It is still considered safe for showering and bathing
- It is still considered safe for cleaning

PFAS AT THE DILLINGHAM AIRPORT

Sammy Loud, PFAS Coordinator, DOT&PF Statewide Aviation



DILLINGHAM AIRPORT, AFFF USE AREAS, SAMPLING AREAS



WHY HAVE PFAS BEEN USED AT AIRPORTS?

PFAS have been used at Dillingham Airport in AFFF for required FAA equipment testing, and any needed emergency fire response.

The Federal Aviation Administration (FAA) mandates:

- "testing of firefighting foam equipment on aircraft rescue and firefighting vehicles is done in accordance to NFPA 412: Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment"

Simplified summary of NFPA 412:

- Foams shall be flowed annually to ensure expansion ratio and drainage criteria are met.

Per the FAA, there is no exemption to annual testing.

FAA Reauthorization Act – Must provide an alternate AFFF option to airports by 2021.



AQUEOUS FILM FORMING FOAMS AT DOT&PF AIRPORTS

FAA National Part 139 CertAlert No. 19-01

- On January 17, 2019, the FAA released CertAlert No. 19-01, acknowledging that testing ARFF vehicles' AFFF systems is essential to safety, but also recognizing the environmental concerns of discharging fluorine containing AFFF during annual testing. Keeping both in mind, FAA recommends that airport operators consider using one of the following AFFF testing systems, which the FAA has accepted for immediate use, to satisfy the Part 139 testing requirement while minimizing the environmental impact:
 1. Eco-Logic system from E-One
 2. NoFoam System
 3. OshKosh Eco EFP (Electronic Foam Proportioning) System



TIMELINE

- Dillingham Airport became a certified Part 139 airport – March 1973
- AFFF only used at Dillingham Airport for certification testing or in the event of an emergency (less than 10 seconds) - March 1973
- DEC sampled nine wells in Dillingham – December 2019
- DOT&PF/DEC received preliminary sampling results – January 2019
- Shannon & Wilson, Inc. To conduct well search and sampling – February 2019

MOVING FORWARD

PFAS sampling results will determine the scope of action moving forward

- For wells testing above 400ppt – begin groundwater cleanup
- For wells testing above 70ppt – provide alternative drinking water source and develop permanent source of drinking water
- For wells testing 35-70ppt – retest quarterly
- Future sampling may include source area delineation and more groundwater monitoring

Future action may involve on-site and off-site projects, including:

Off-airport

- Determine extent of PFAS plume
- Site characterization

On-airport

- Site characterization (e.g., extent of contamination, identifying sources and dates)
- Remediation (removal or treatment of affected soil and water) if necessary
- Provide long-term source of alternative drinking water if necessary

COMMUNITY OUTREACH

Press Releases:

- Sign up for GovDelivery

<https://public.govdelivery.com/accounts/AKDOT/subscriber/new>

Website:

- <http://www.dot.state.ak.us/airportwater/>

Email:

- Airportwater@alaska.gov
- Subject – sign up

Contact:

Sammy Loud, C.M.
Development Specialist
PFAS Project Manager
Statewide Aviation – DOT&PF
C: 907-888-5671

The screenshot shows a web browser displaying the Alaska Department of Transportation and Public Facilities website. The page title is "PER- and POLYFLUOROALKYL SUBSTANCES". The header includes the state logo and the slogan "Yak'ei haat yigoodéel! (Tlingit) 'It is good that you have come here!'". The navigation menu includes "Travel", "Business", "News and Social", "Projects", and "About Us". A search bar is present with the text "Google DOT&PF". The main content area is titled "Alaska PFAS Information" and includes a "Page updated 1/30/19" notice. Below this is a section for "PFAS Fact Sheets" with a list of links: "PFAS Health & Safety Q&A", "Common PFAS Water Treatment Technologies", "Raising Awareness of PFAS Chemicals in Alaska", and "Protecting Public Health and Addressing PFAS Chemicals". A note states: "Note: If you have trouble viewing any of the above documents, please contact us for an alternative option." The "Regulatory Health and Cleanup Levels" section begins with: "The DEC published cleanup levels for two types of PFAS, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), in groundwater in November 2016. The groundwater-cleanup levels are described at the DEC SPAR Project webpage under Contaminated Sites Regulation Project (June 2018)." The EPA established a provisional health advisory (PHA) level

For more information contact:

**DEC Contaminated Sites
Project Oversight**
bill.oconnell@alaska.gov
Fairbanks Area Sites
robert.burgess@alaska.gov
Regulations/Policy
sally.schlichting@alaska.gov

DEC Drinking Water
cindy.christian@alaska.gov

DEC Water Quality
earl.crapps@alaska.gov
brock.tabor@alaska.gov

DOT&PF PFAS Coordinator
sam.loud@alaska.gov

DH&SS Human health questions
stacey.cooper@alaska.gov
kristin.bridges@alaska.gov

Or visit:

DOT&PF website: <http://dot.alaska.gov/airportwater/>

DHSS website: <http://dhss.alaska.gov/dph/Epi/eph/Pages/PFAS.aspx>

DEC website: <http://dec.alaska.gov/spar/csp/pfas-contaminants>