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)
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/Graphic-abstract_fig3_319880721 [accessed 1 Feb, 2019]
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

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.
HOW CAN I BE EXPOSED TO PFAS?

CONTAMINATED FOOD

CONTAMINATED WATER

HOUSEHOLD PRODUCTS
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

PFAS MEASURED IN THE SERUM OF NEARLY ALL PEOPLE TESTED BY CDC (NHANES SURVEY 1999-2000)

TYPE OF PFAS HALF LIFE
- PFOA: 2-4 YEARS
- PFOS: 5-6 YEARS
- PFHxS: 8-9 YEARS

Average Blood PFAS Level (micrograms per liter, ug/L)
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
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:

<table>
<thead>
<tr>
<th>Laboratory</th>
<th>Phone Number</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axys Analytical</td>
<td>1-888-373-0881</td>
<td><a href="http://www.axysanalytical.com">www.axysanalytical.com</a></td>
</tr>
<tr>
<td>NMS Laboratory</td>
<td>1-866-522-2206</td>
<td><a href="http://www.nmslabs.com">www.nmslabs.com</a></td>
</tr>
<tr>
<td>Vista Analytical</td>
<td>1-916-573-1520</td>
<td><a href="http://www.vista-analytical.com">www.vista-analytical.com</a></td>
</tr>
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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.
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
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

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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