



Aqueous Film Forming Foam Collection and Disposal Draft Environmental Impact Statement

**Public Information Meeting
Sean Smith
January 17, 2024**

This Meeting Is Being Recorded



Available online after this meeting

- Video of this presentation

www.ezview.wa.gov/site/alias_1962/37693/pfas_in_firefighting_foam.aspx



We respect your privacy

Everyone is welcome to stay connected to this online public meeting. Everything will be recorded, including your screen name.

You can log-off now and view the presentation later at the link above.

Welcome and Introductions

Technical Team

- Sean Smith, Dept. of Ecology
- Jason Landskron, Dept. of Ecology
- Meg Bommarito, Dept. of Ecology
- Amy Wilson, TRC
- Victoria Banks, Office of the Attorney General

Facilitation Team

- Gretchen Muller, Cascadia Consulting Group
- Alle Brown-Law, Cascadia Consulting Group
- Taylor Magee, Cascadia Consulting Group

How to Use Zoom



Keep your phone or headset muted.



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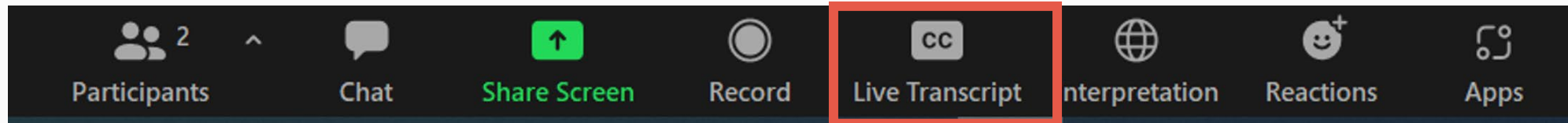


Ask questions via the chat.

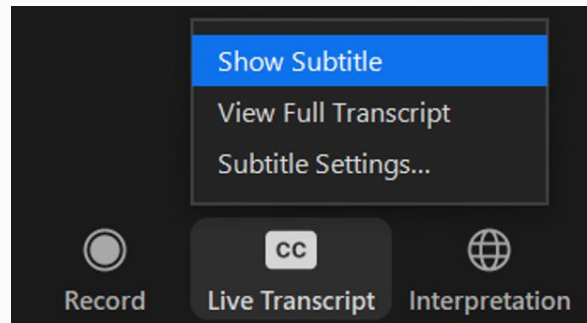
- In your controls at the bottom, click "Chat" and the chat window will appear.
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How to Use Zoom's Closed Captioning

1. Click **Live Transcript** on the bottom of your screen



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Or click **View Full Transcript** to see a transcript window appear

DEIS Public Meetings

Information Session – Today!

- Learn more about the draft Environmental Impact Statement (DEIS) and ask the project team questions.
- Ecology will not collect any public comments at this meeting.

Public Hearing – January 31

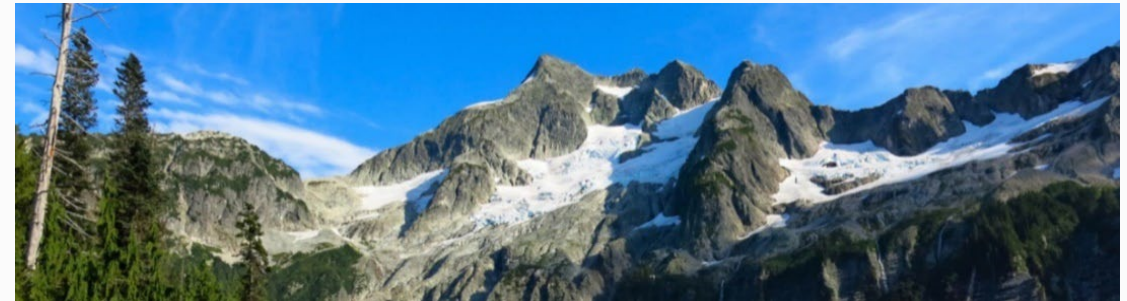
- Share your comments and feedback on the DEIS.
- Ecology will collect public comments for the DEIS record at this meeting.

Information Session Goals

- Provide an overview of the DEIS, including disposal alternatives, environmental and public health impacts, and next steps.
- Answer questions, clarify material, and provide contact information for questions.
- Explain how the public can provide comments on the DEIS.

Information Session Agenda

1. AFFF Collection & Disposal
DEIS Overview
2. Q&A
3. Next Steps & Adjourn





AFFF Program History and PFAS Information

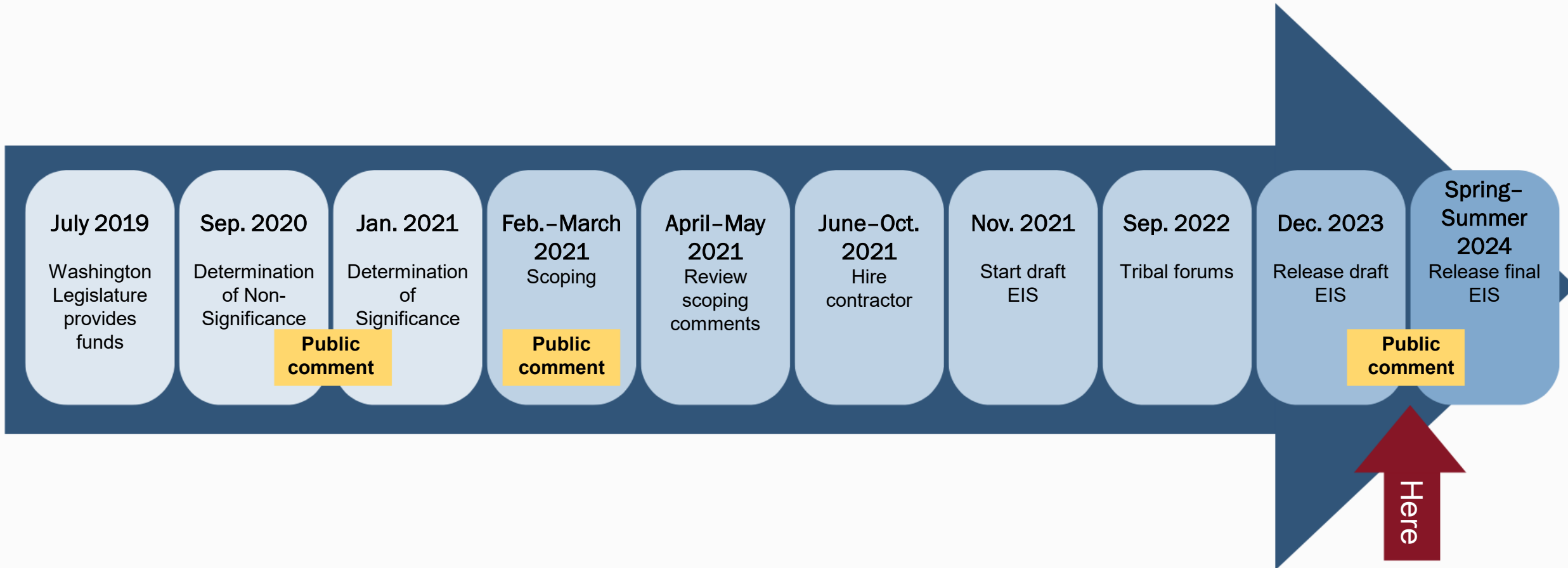
Sean Smith

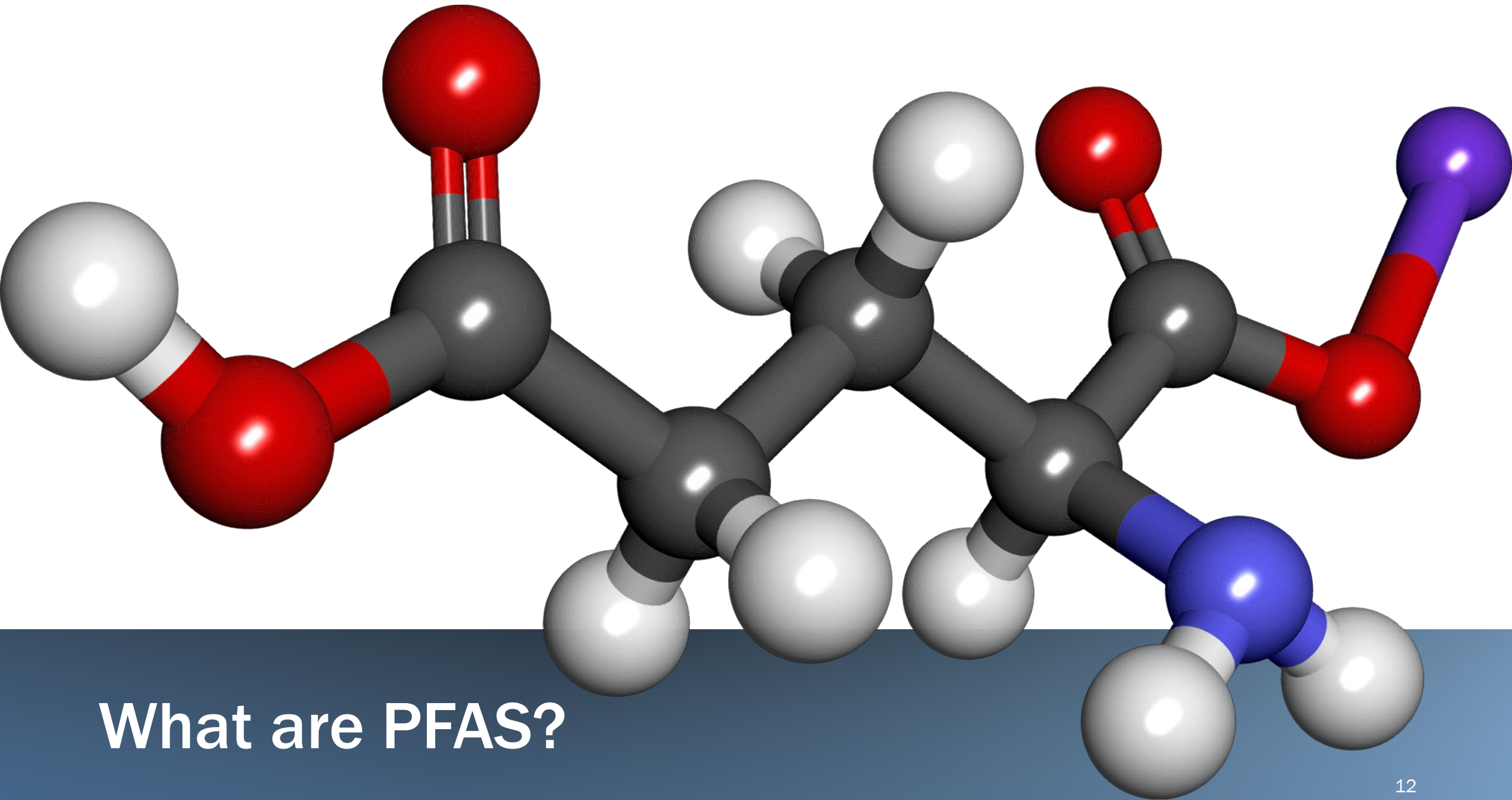
HOW



DID WE GET HERE?

What's the Disposal Program Timeline?





What are PFAS?

Where are PFAS Used?



**Stain- & water-
resistance
treatments**



**Nonstick
cookware**



**Waterproof
apparel**



**Cleaning
products**



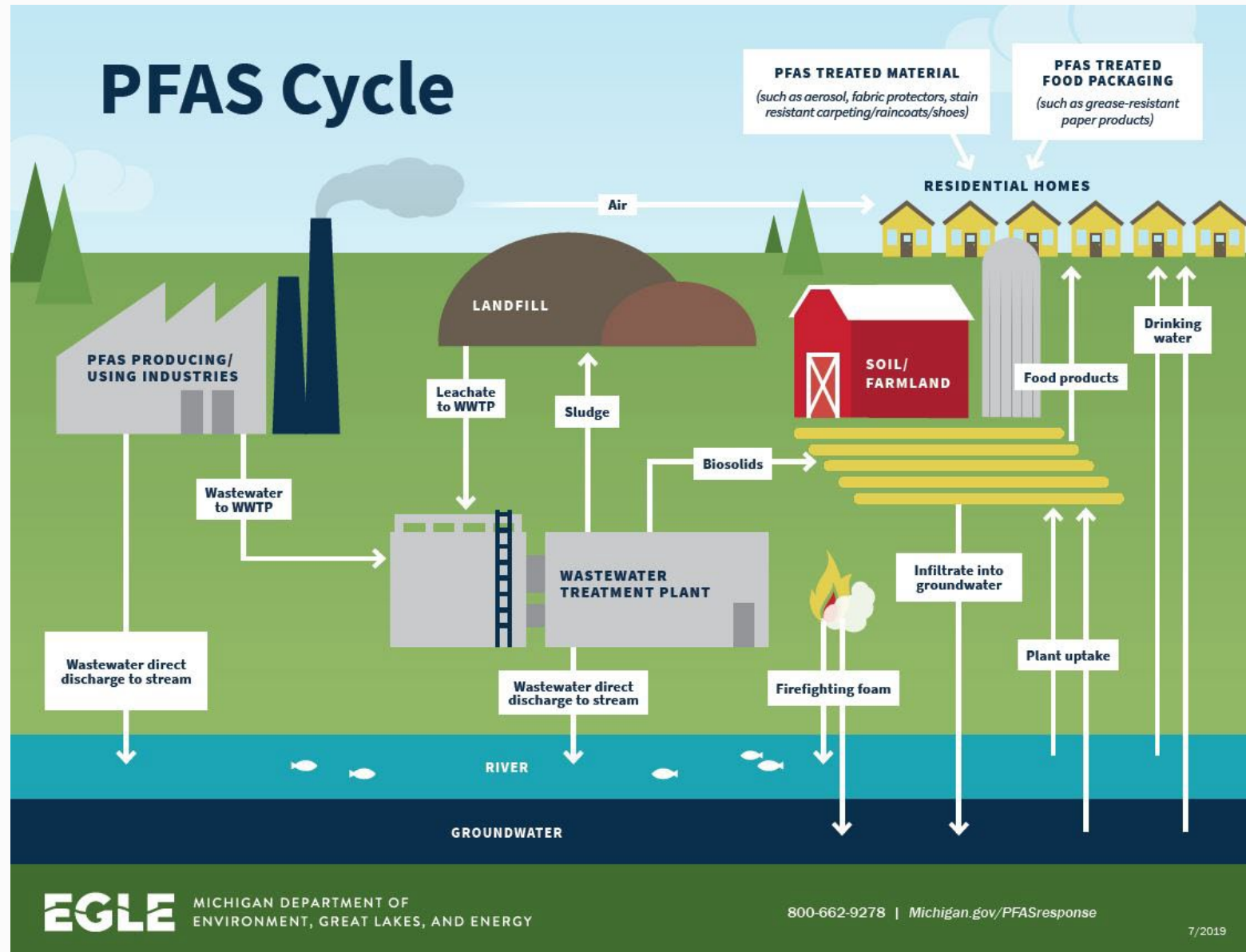
**Firefighting
foam**



**Takeout
containers**

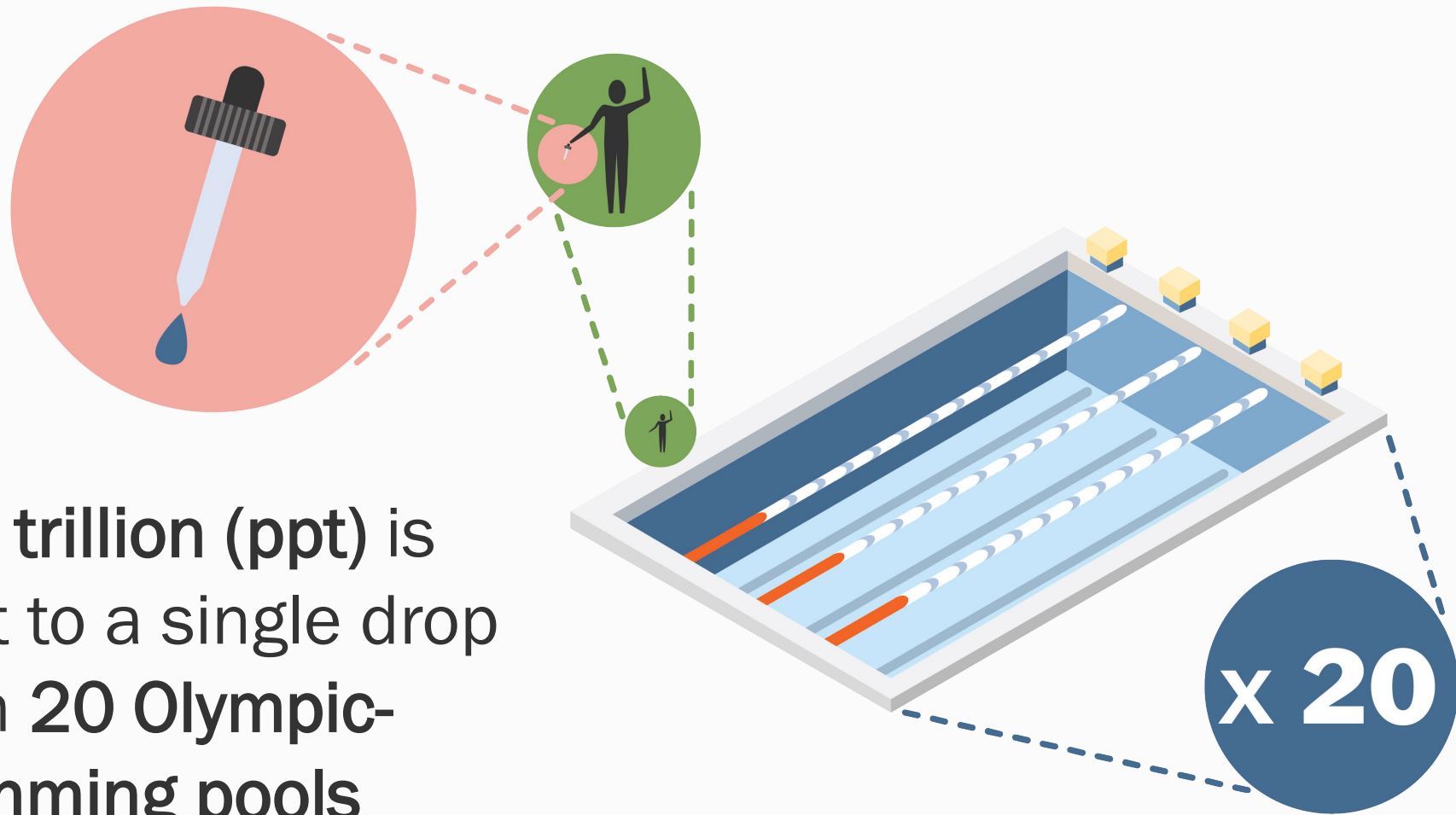


**Carpets &
textiles**



How Does PFAS Enter the Environment?

What do Parts per Trillion Look Like?



1 part per trillion (ppt) is equivalent to a single drop of water in **20 Olympic-sized swimming pools**



Ecology's Aqueous Film Forming Draft Environmental Impact Statement

Environmental Impact Statement (EIS)

Purpose:

- Provide information early in the process
- Identify adverse impacts
- Evaluate reasonable alternatives
- Discuss impacts and mitigation
- Be Science-based

Does NOT approve or deny a project.



Key Findings



Foam Stockpiles

- More than 100 departments.
- Up to 59,000 gallons of AFFF.
- Drafted guidance and provided resources.



Disposal Alternatives



- Approved Hold in Place
- Incineration
- Solidification and Landfilling
- Deep Well Injection
- No Action

Alternative 1: Approved Hold In Place

- AFFF would be held in place at participating fire stations.
- Suitable containment would be approved and reimbursed by Ecology until acceptable advanced treatment technology becomes available.



Alternative 1: Approved Hold In Place (positives & negatives)

Positives

- Little pre-treatment
- Source reduction
- No downwind contamination
- Preserves options for future treatment

Negatives

- Risk of spills at fire departments
- Containers need to be disposed
- Storage required, burden on fire departments
- Regulatory and legal hurdles

Alternative 2: Incineration

- AFFF would be collected and transported to a selected existing treatment facility for incineration.
- Ecology is considering two federally permitted incinerators one outside Aragonite Utah, the other near Kimball Nebraska.



Alternative 2: Incineration

(positives & negatives)

Positives

- Destruction of the PFAS molecule
- Source reduction
- All materials including containers can be incinerated
- High volume disposal

Negatives

- Little data or test methods to determine effectiveness
- Risk of downwind contamination
- Few locations that can achieve temps and hold times
- Risk of products of incomplete combustion
- Production of greenhouse gases

Alternative 3: Solidification and Landfilling

- AFFF would be collected and transported to a selected landfill facility or facilities for solidification and disposal.
- Ecology is reviewing two federally permitted landfills one outside of Grand View Idaho, the other near Beatty Nevada.



Alternative 3: Solidification and Landfilling

(positives & negatives)

Positives

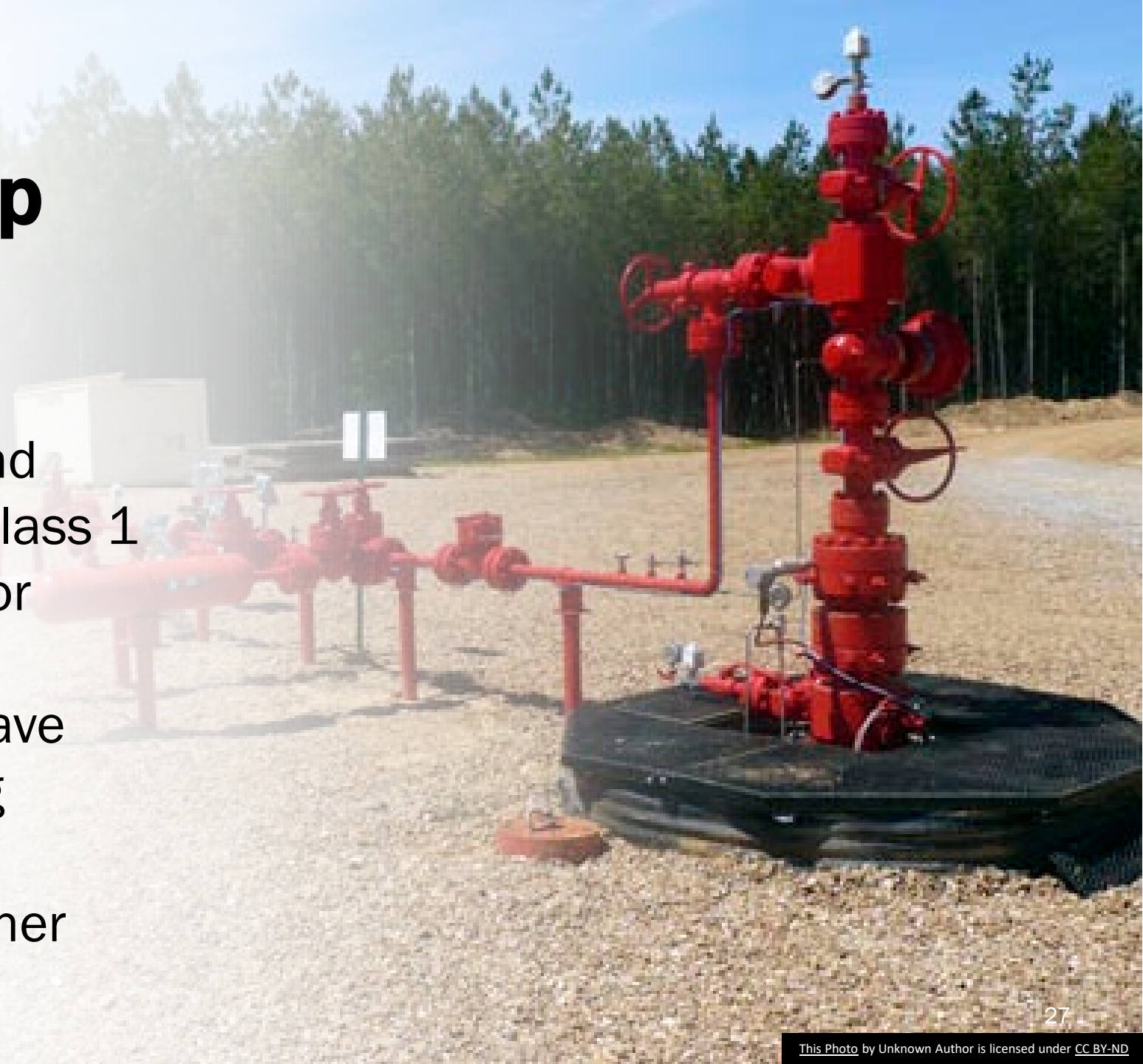
- Potential for future treatment
- Centralized location
- High-volume disposal
- Solidification reduces PFAS migration risk

Negatives

- No PFAS destruction
- Needs Indefinite monitoring
- Possible Ground and Water contamination
- Requires Pre-Treatment
- Continual need for leachate treatment and management

Alternative 4: Deep Well Injection

- AFFF would be collected and transported to a selected class 1 deep well injection facility or facilities for disposal.
- Two Deep Well sites that have disposed of AFFF are being reviewed. One south of Hutchinson Kansas, the other outside of Houston Texas.





Alternative 4: Deep Well Injection

(positives & negatives)

Positives

- Minimal pre-treatment
- Centralized location
- High-volume disposal
- Minimal impact upon downwind communities

Negatives

- No PFAS destruction
- Only liquid waste, drums would need to be burned or buried
- Potential ground and water contamination
- No potential for future treatment

Alternative 5: No Action

- AFFF would be left as is at participating fire stations.
- Individual fire departments would be responsible for management and disposal of their AFFF.

No Action

Alternative 5: No Action (positives & negatives)

Positives

- No cost to state
- Transport spill risk eliminated
- Secondary waste streams eliminated

Negatives

- No destruction of the PFAS molecule or AFFF disposal
- Fire department spill risk

What Did We Study?



- Earth and water (wetlands, drinking water)
- Air quality and greenhouse gases
- Human health and safety



- Plants and animals and their habitats
- Land use
- Public services and utilities
- Cultural and Tribal resources
- Environmental justice
- Transportation



Collection and Transportation

- Greatest risk is from accidental releases or spills during transfer.
- Finalization of participation agreements.
- Hazardous waste haulers must comply with local, state, and federal law.
- Tribal coordination.

Approved Hold In Place ~ Mitigation

- Development of Ecology storage guidance.
- Development and approval of fire department storage plans.
- Resources to transfer foam to appropriate containers with secondary containment.



Incineration ~ Mitigation

- Federally permitted facilities in remote locations.
- Precise operating conditions including minimum temperatures and hold times.
- Automatic waste feed shutdowns.
- On-site ash landfill disposal and incineration of leachate.



Solidification and Landfilling ~ Mitigation

- Foam solidification in leak resistant material like concrete.
- Federally Permitted Class C landfills in remote arid locations.
- Landfill engineering that includes two or more liners, leak detection, leachate collection and recovery, and down gradient monitoring.
- Segregation if necessary and, if possible, of the disposed AFFF for future identification and recovery.



Deep Well Injection ~ Mitigation

- State or federally permitted disposal wells.
- Injection of foam hundreds to thousands of feet below underground drinking water.
- Compliance with federal regulation's remain in place plans.
- Approval from receiving state.



No Action ~ Mitigation

- Fire departments must manage and dispose of waste AFFF in compliance with state dangerous waste regulations.



Key Take Aways

- For collection and transport, hold in place, and no action:
No significant adverse environmental impacts.
- For incineration, solidification and landfilling, and deep well injection: **Less than significant adverse impacts with mitigation on Tribal resources.**

Program Implementation

Alternative	May Require
Alternative 1: Approved Hold In Place	Development of new regulations, policies, permits, or guidance. May also need to acquire approval from receiving state.
Alternative 2: Incineration	Development of work order for state hazardous waste hauler to begin collection.
Alternative 3: Solidification and Landfilling	Solicitation of hazardous waste disposal bids, including a request for bids, bid review, and selection of a hazwaste hauler.
Alternative 4: Deep Well Injection	Solicitation of hazardous waste disposal bids, including a request for bids, bid review, and selection of a hazwaste hauler.
Alternative 5: No Action	No new Ecology action.

Public Comment Period



December 20, 2023 – February 5, 2024



Q & A

Q&A Reminders

- Ecology *isn't* capturing any questions or comments made today as formal comments on the record.
- If you'd like to make a formal comment, you may submit written comments online or attend the public hearing on January 31 from 1–4 p.m.
- To ask a question, please write in the chat.

Technical Team

- **Sean Smith**, Department of Ecology
- **Jason Landskron**, Department of Ecology
- **Meg Bommarito**, Department of Ecology
- **Amy Wilson**, TRC
- **Victoria Banks**, Office of the Attorney General

Next Event

Public Hearing

- **Date:** January 31, 2024
- **Time:** 1 p.m. – 4 p.m.
- **Zoom link:**
us02web.zoom.us/j/88449630921



Next Steps

- **February 5, 2024:** Comment period ends
- **Winter 2024:** Draft response to comments incorporate changes into the final draft
- **Spring 2024:** Finalize and release the EIS
- **Summer 2024** Determine disposal option(s)
- **Summer 2024:** Begin program implementation



Thank You

For more information on Ecology's AFFF disposal program or our other product replacement work, please contact me:

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To learn more about our work, visit:
ecology.wa.gov/ToxicsInFirefighting

