Washington State Department of Health

PFAS RULEMAKING BRIEFING

Washington State Board of Health

June 9, 2021

Presenters

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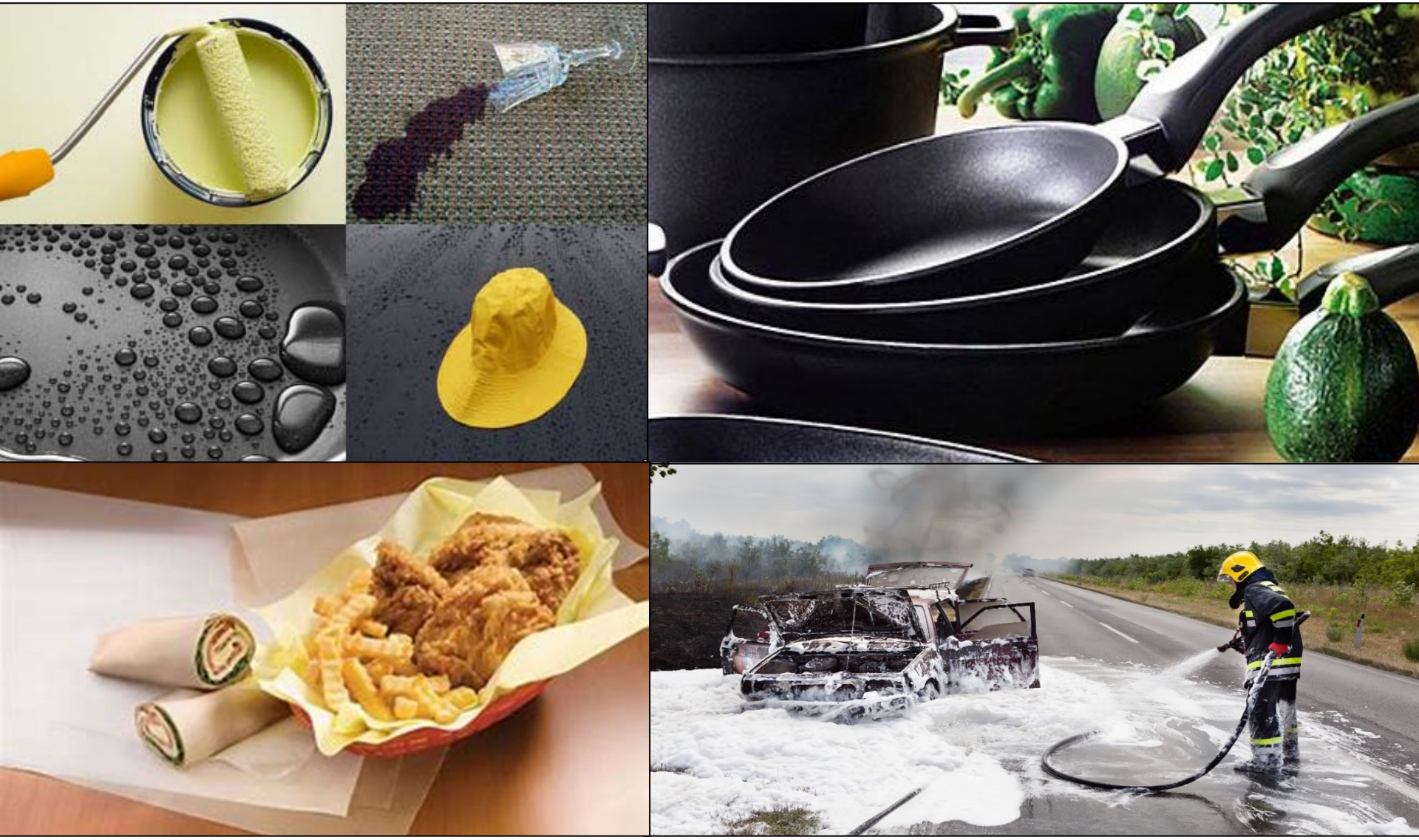
What Are PFAS?

PFAS—Nonstick, Stain & Water Resistant, Heat Stable



Some PFAS are PBTs

Persistent in the environment

Bioaccumulate in humans

Toxic at relatively low (ppt) levels

Health Concerns

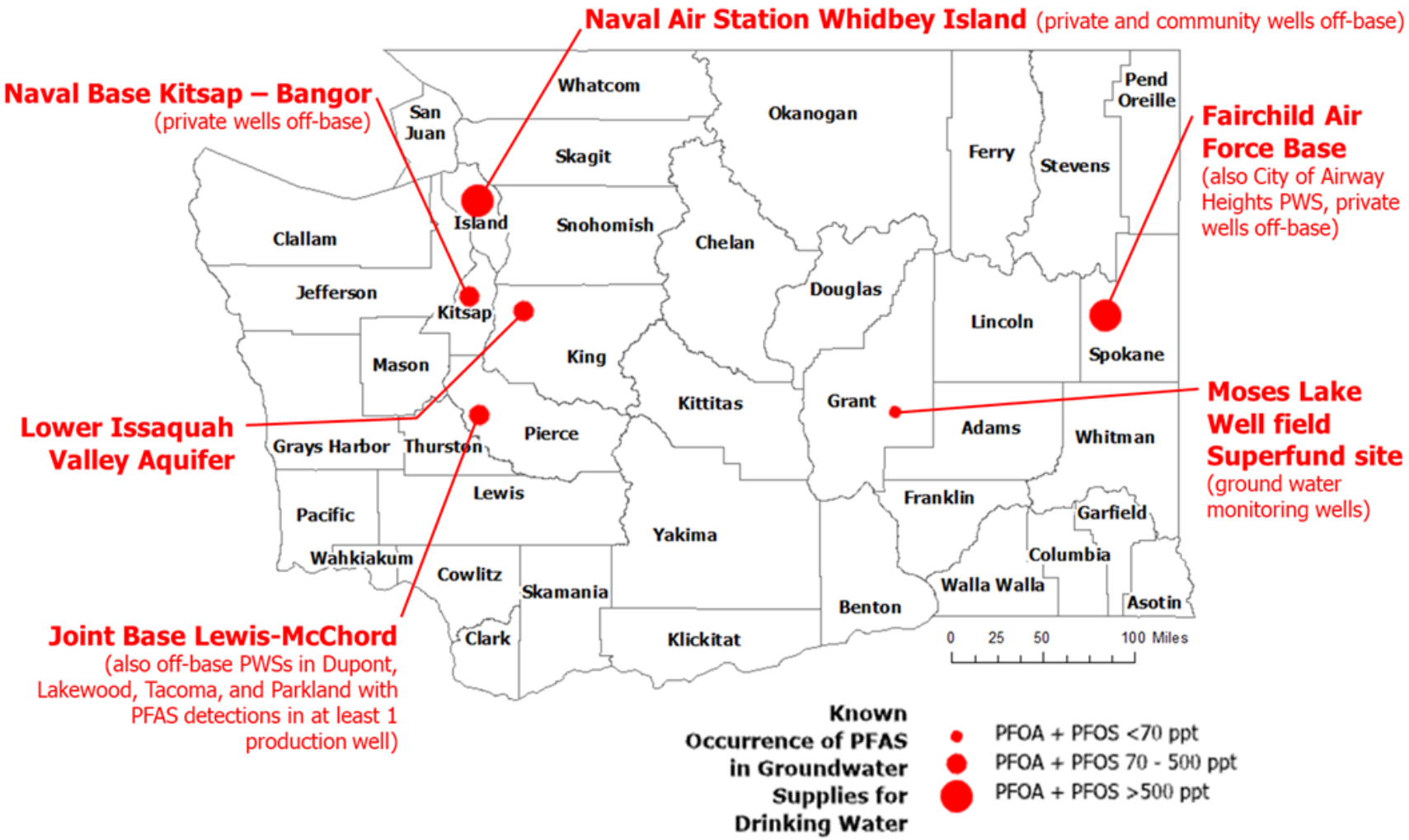
Toxicity observed in **laboratory animals**:

- Liver toxicity
- Developmental toxicity
- Reproductive toxicity
- Immune toxicity
- Endocrine disruption
- Tumors in liver, pancreas, testes

In humans, PFAS exposure is associated with:

- Increased cholesterol levels
- Altered liver enzyme levels
- Reduced immune response to vaccines
- Lower birth weight
- Blood pressure problems during pregnancy
- Increase risk of thyroid disease
- Increased risk of cancer (kidney and testicular)

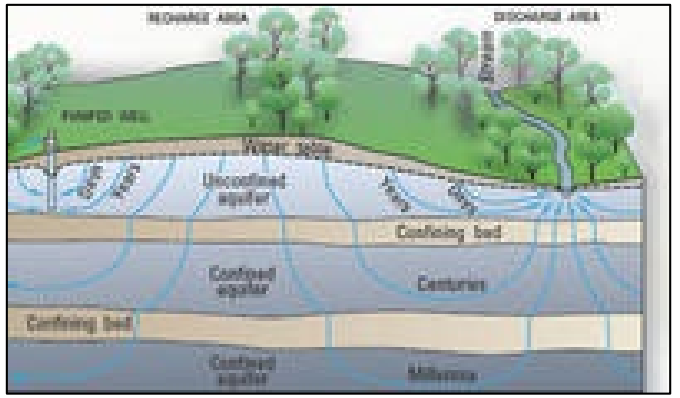
PFAS in Drinking Water Supplies



Source of data: voluntary testing by military bases and by public water systems

How PFAS in AFFF reaches drinking water

Runoff to surface water



Leaches to groundwater

Other Sources of PFAS in Drinking Water

- Industrial discharge to air and water
- Industrial, municipal waste streams

Landfills

Wastewater treatment

Biosolids

PFAS Unregulated by Safe Drinking Water Act

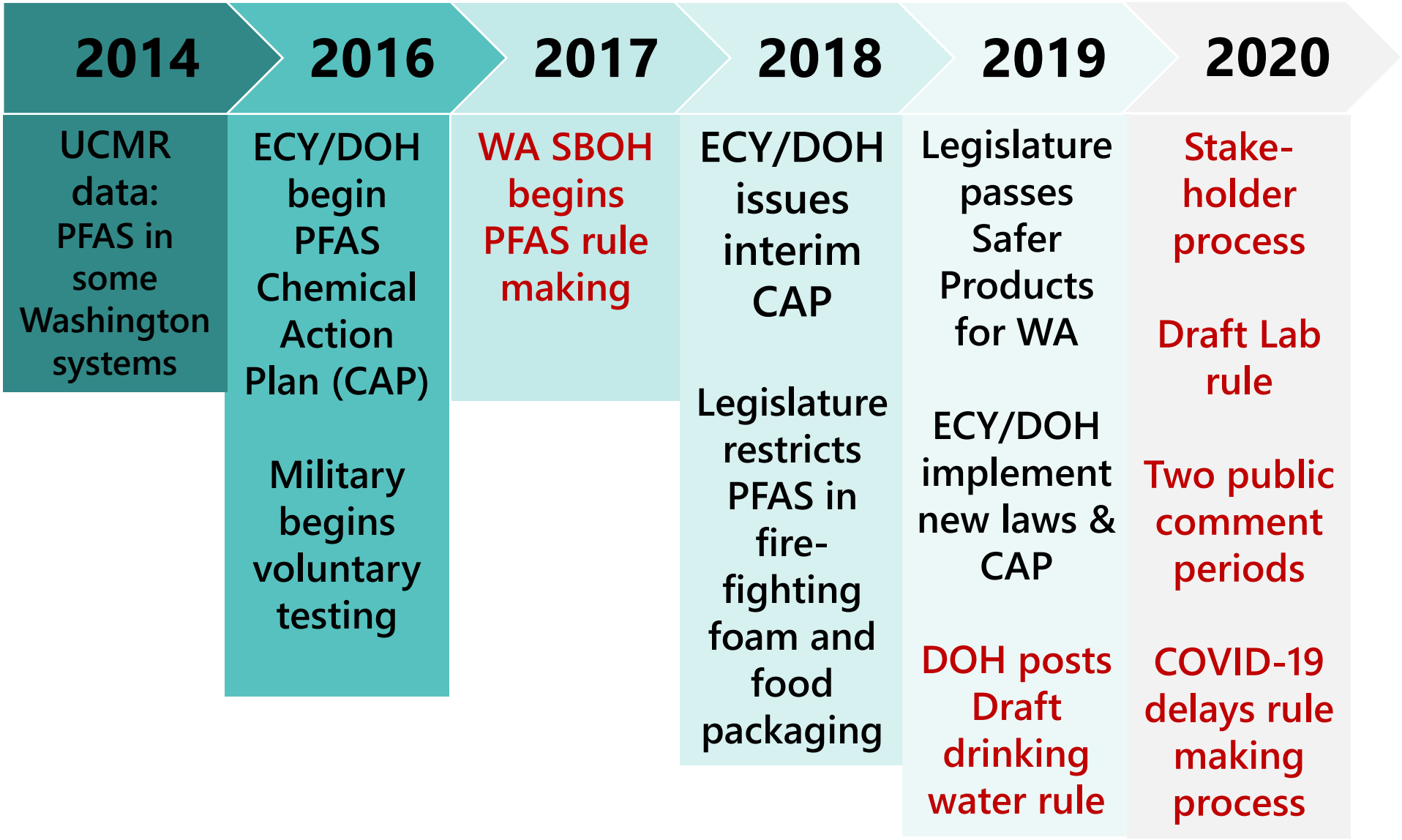
2016 EPA Health Advisory (PFOS,PFOA)

2021 EPA announced “developing MCLs”

States have enforceable standards for drinking water. (NJ, NH, NY, MA, MI, VT)

- Some states are adopting notification limits and their own health advisories.

Washington State Action on PFAS



PFAS Chemical Action Plan (CAP) 2016-2021

Learn more at
https://www.ezview.wa.gov/?alias=1962&pageid=37105

Statewide Chemical Action Plan for PFAS Draft Recommendations

Ensure safe drinking water

Manage environmental contamination

Reduce PFAS in products

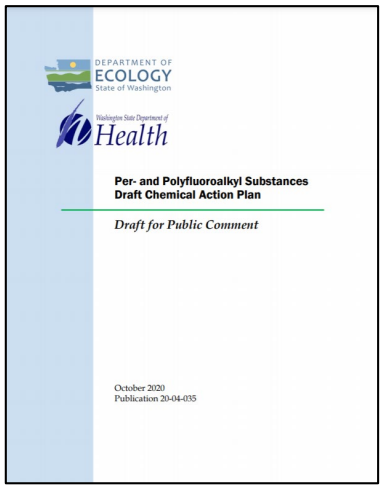
Understand and manage PFAS in waste

Statewide Chemical Action Plan for PFAS

Recommendations to Ensure Safe Drinking Water

Interim CAP-2018

- Expand drinking water testing
- Support SBOH in setting drinking water standards to protect health



Final CAP draft

- Identify funding to support water testing & mitigation
- Technical support for source investigation
- Support exposure & health studies to answer health questions
- Set state clean-up levels under MTCA

SAL Rulemaking

State Board of Health: Rulemaking

TOXIC-FREE FUTURE
SCIENCE • ADVOCACY • RESULTS

EARTH MINISTRY

zero waste washington

The Arc
For people with intellectual and developmental disabilities

WSNA
WASHINGTON STATE NURSES ASSOCIATION

PROGRESO
LATINO PROGRESS

CITIZENS OF EBEYS RESERVE
protecting our land, homes, and health

Petition to set state PFAS drinking water standards

SBOH accepted petition Oct 2017

Considerations

- Mechanism - SAL vs. MCL
- Which PFAS to include?
- When to take action?
- Update the Lab Rule

Key Recommendations and Decisions

Which mechanism - SAL vs. MCL?

Which chemicals?

At what levels do we require follow up actions?

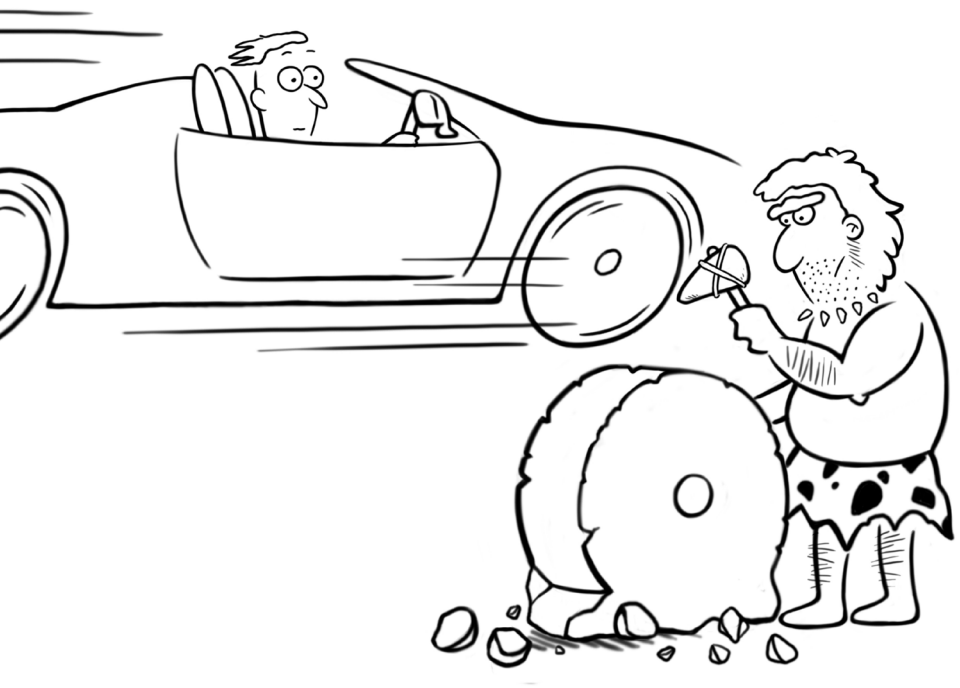
Update the Lab Rule

Approach to setting PFAS SALs

SALs are Health Protective

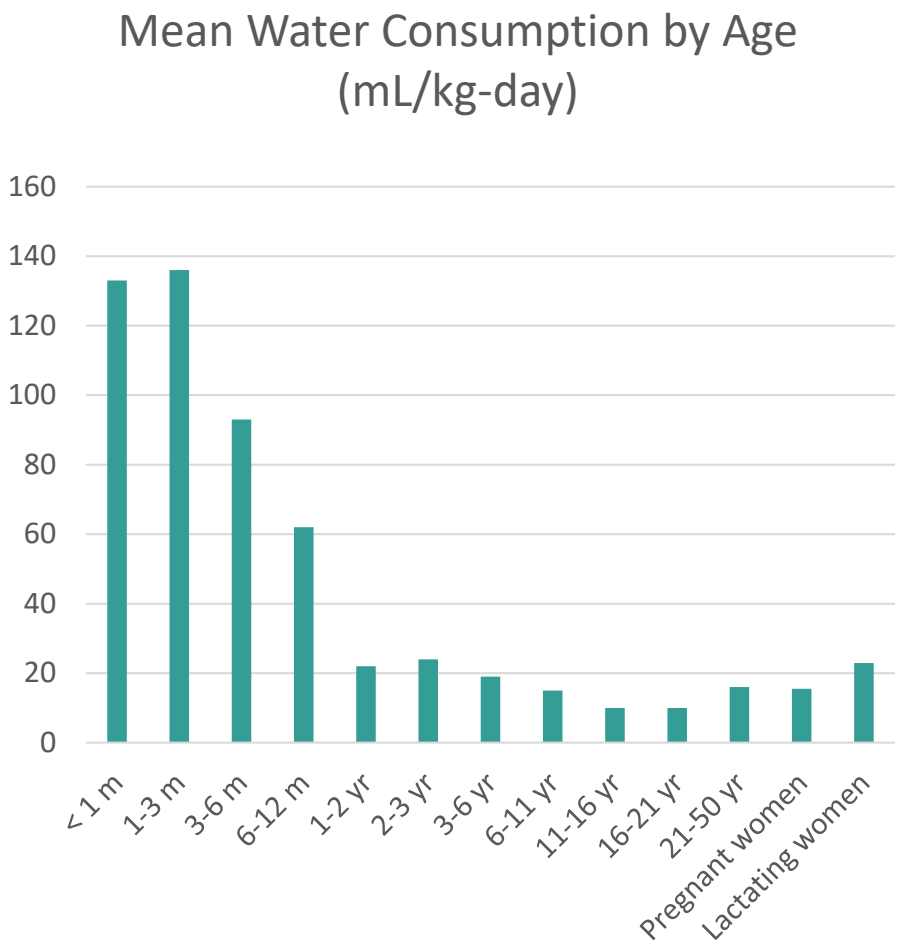
A level in water expected to be without appreciable health effects over a lifetime of exposure, this includes sensitive groups.

Approach to Deriving the SALs for PFAS



- **Which PFAS to include?** Focus on PFAS detected in WA drinking water, with sufficient data.
- **Numerical Values.** Use existing high quality toxicological assessments (EPA, ATSDR, U.S. States).
- Review toxicity studies and epidemiological findings.

Protect Sensitive Life stages



Infants have higher exposure to contaminants in drinking water

Protecting Sensitive Life stages

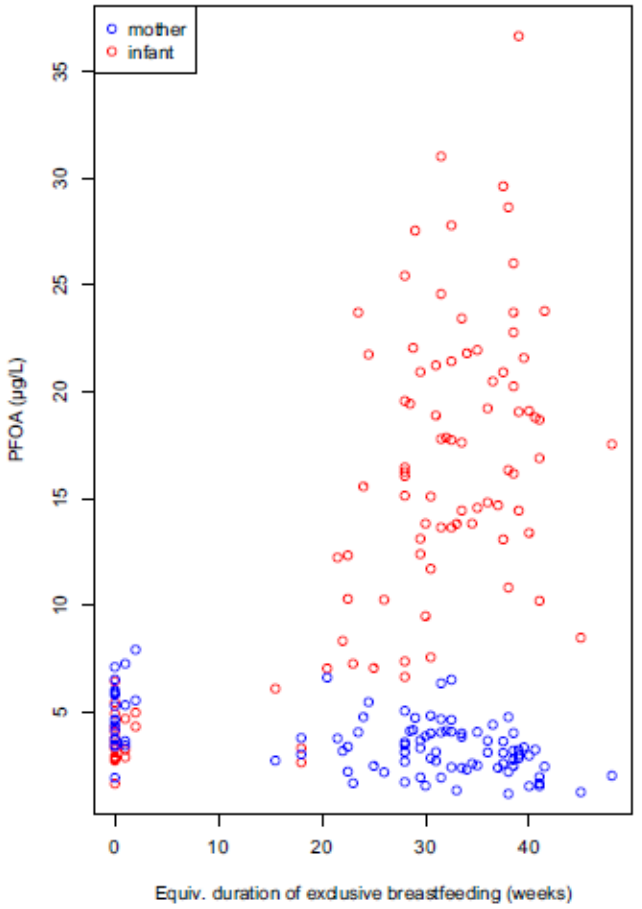
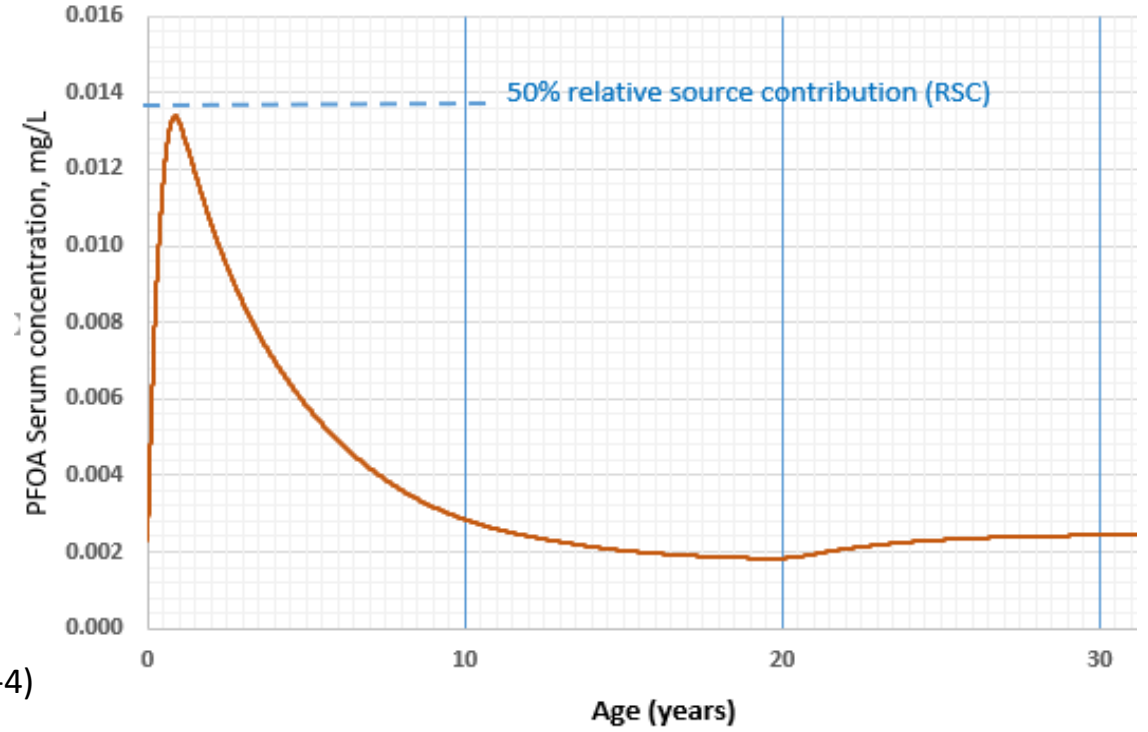


Fig. 1 Scatter plot of plasma levels of PFOA in children and their mothers in relation to the equivalent duration of exclusive breastfeeding ($n = 101$)

Abraham et al. (2020) Archives of Toxicology (https ://doi.org/10.1007/s0020 4-020-02715 -4)

Breastfed infants have higher exposures

Predicted serum PFOA in breastfed children with 10 ppt PFOA in community drinking water



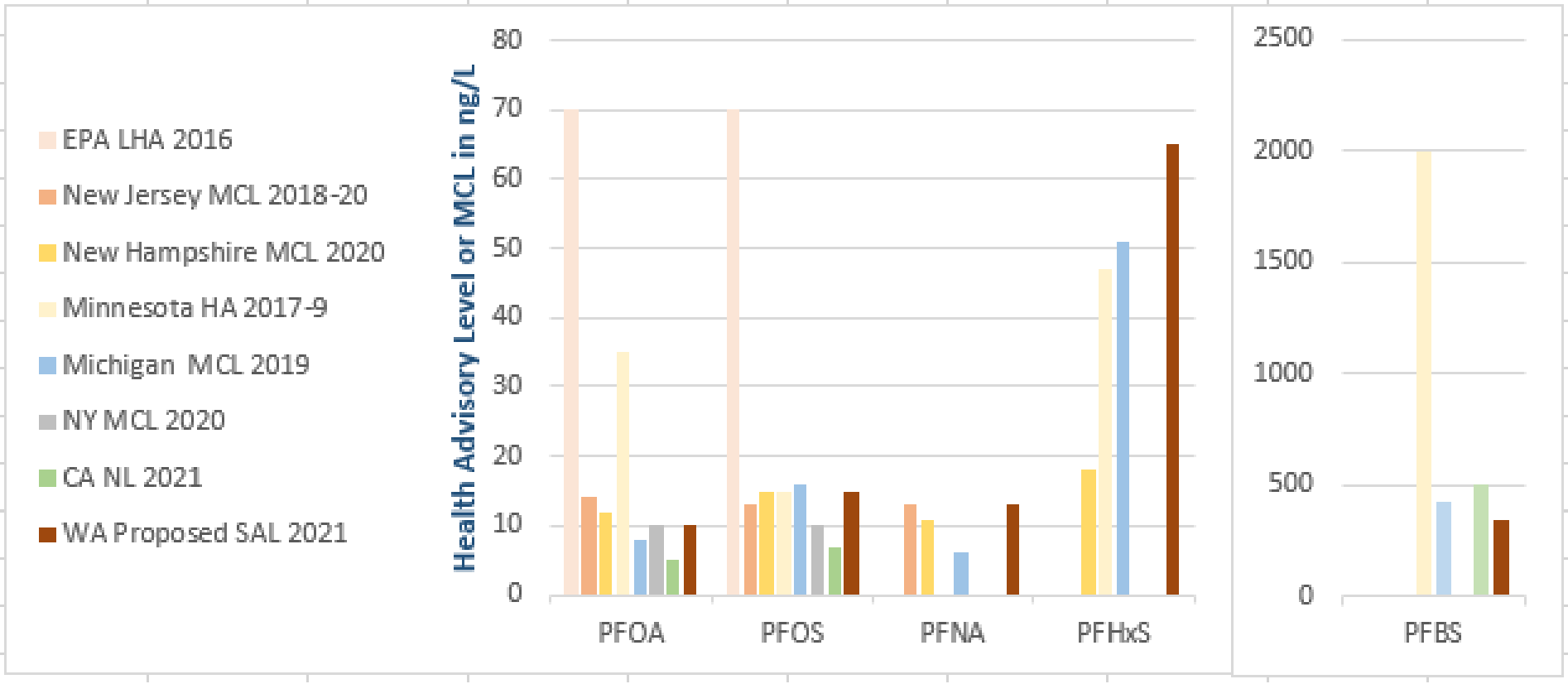
Recommended health protective values and state action levels (SALs)

PFAS	RfD/MRL (ng/kg-day)	Source (year)	Basis	Relative Source Contribution	Ingestion rate	SAL in drinking water
PFOA	3	ATSDR MRL (2018)	Developmental effects in mice.	50% infants	MDH model[a]	10 ng/L
PFOS	3	MDH, NHDES RfD (2019)	Immune effects in mice. Also protective of developmental effects in rats.	20% Adults 50% infants	MDH model[a]	15 ng/L
PFNA	3	ATSDR MRL (2018)	Developmental effects in mice.	50% infants	MDH model w/ MDHHS inputs[c]	13 ng/L
PFHxS	9.7	MDH RfD (2019)	Reduced thyroid hormone (T4) in rats (developmental concern).[d]	50% infants	MDH model[a]	65 ng/L
PFBS	300	EPA RfD 2021	Reduced thyroid hormone (T4) in mice (developmental concern).[c]	20%	0.174 L/kg-d	345 ng/L

Draft SALs for PFAS in Drinking Water

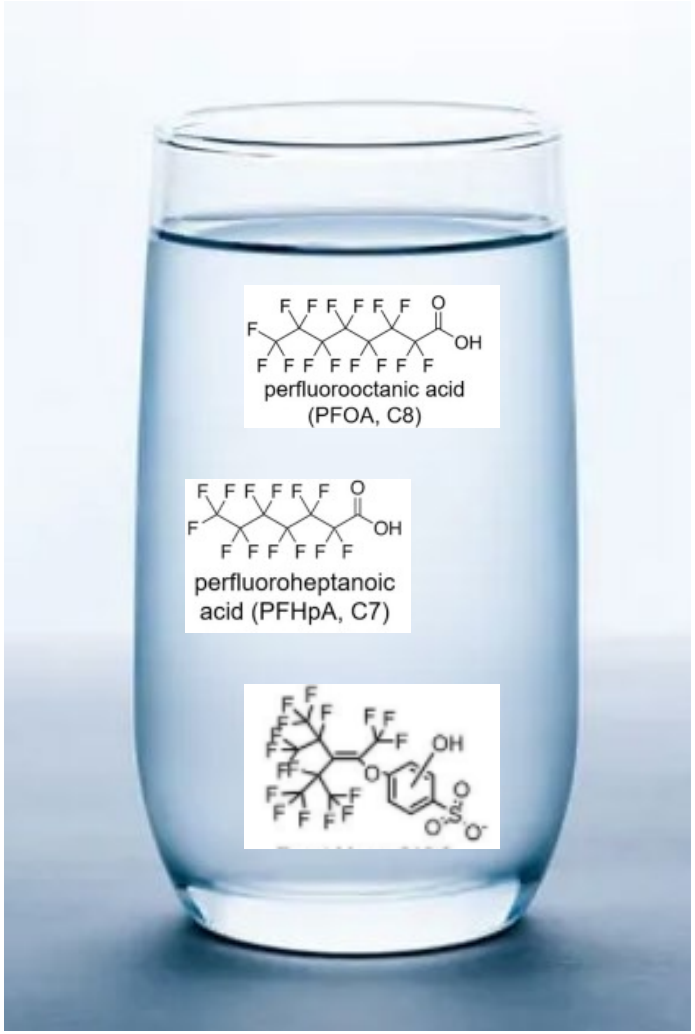
Contaminant	Draft SAL (parts per trillion)	Revised SAL (parts per trillion)
PFOA	10	10
PFOS	15	15
PFNA	14	13
PFHxS	70	65
PFBS	860	345

Comparison with EPA Advisory, State MCLs



Problem of PFAS mixtures

- PFAS frequently occur as mixtures in drinking water
- Some PFAS are unstudied
- Some PFAS aren't measured by EPA test panels



Approach to PFAS Mixtures

- Class-wide approach
- Subclasses approach
- Draft SAL rule: science-based action levels for 5 Individual PFAS with broad risk management when they are found

PFAS Rule Requirements

Initial Monitoring Requirements for PFAS

Community & nontransient noncommunity water systems

Initial and ongoing monitoring requirements for PFAS once every three years

Transient noncommunity water systems (e.g. campground, corner store)

Monitor only if located near known or suspected sites of PFAS contamination-as directed by DOH

Increase Monitoring Requirements (What Happens After an Initial Detection)

If quarterly results are:

Low	Medium	High
1 total quarter of increased monitoring	**2 total quarters of increased monitoring**	**3 total quarters of increased monitoring**

Ongoing Monitoring Frequency (Following Increased Monitoring)

If results from last year are:

Low	Medium	High
1 time every 3 years	**Annually**	**Quarterly**

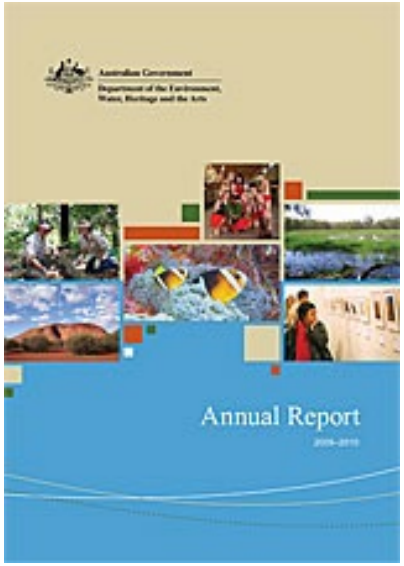
Public Notice Requirements

Water Systems that exceed a SAL

- Inform customers about the health effects of the contaminant
- What, if anything, are they doing to address the issue
- What consumers can do to reduce their exposure

Community water systems with a detection

- Include information on detected PFAS in their annual consumer confidence report



The Benefits of Public Comments

- Added state MCL process
- Added information confirming what happens if/when EPA promulgates MCL
- Allowance for UCMR5 samples to count towards meeting initial monitoring requirements even though detection limits are higher – would require more analytes (both methods must be used for UCMR5) and more samples (2-4 samples) to be reported
- Numerous minor technical corrections

Question that will continue to arise

What does "Take action as directed by the department" mean?

- This authority already existed in our rule for unregulated contaminants. It's not a new requirement.

The department shall determine the purveyor's follow-up action when a substance not included in this chapter is detected.

How Do We Fund Treatment for PFAS?

PFAS contamination is an eligible condition for State Revolving Funds

Ecology continues to work on grant funding and will move forward w/cleanup standards once SAL is in rule

Ecology cleanup standards impose both state and federal requirements for responsible parties to address contamination

Lab Rule Overview

Lab Rule Changes

Changes to the rule to include PFAS test panel requirements

Changes to address reporting for PFAS detections and future contaminants with a SAL

Technical changes

PFAS Specific Changes

Only EPA methods 537.1 and 533 will be allowed to be used when analyzing for PFAS contaminants

Labs will report any result above established state detection reporting limits.

Any Tentatively Identified Compounds must be reported to ODW if method specifications can identify them.

All state detection reporting limits are 2 ng/L except for the two listed below which are 3 ng/L:

- **NEtFOSAA**
- **NMeFOSAA**

All additional contaminants that each method can test for must be reported to ODW if a waiver is to be granted

EPA Test Methods for PFAS in Drinking Water

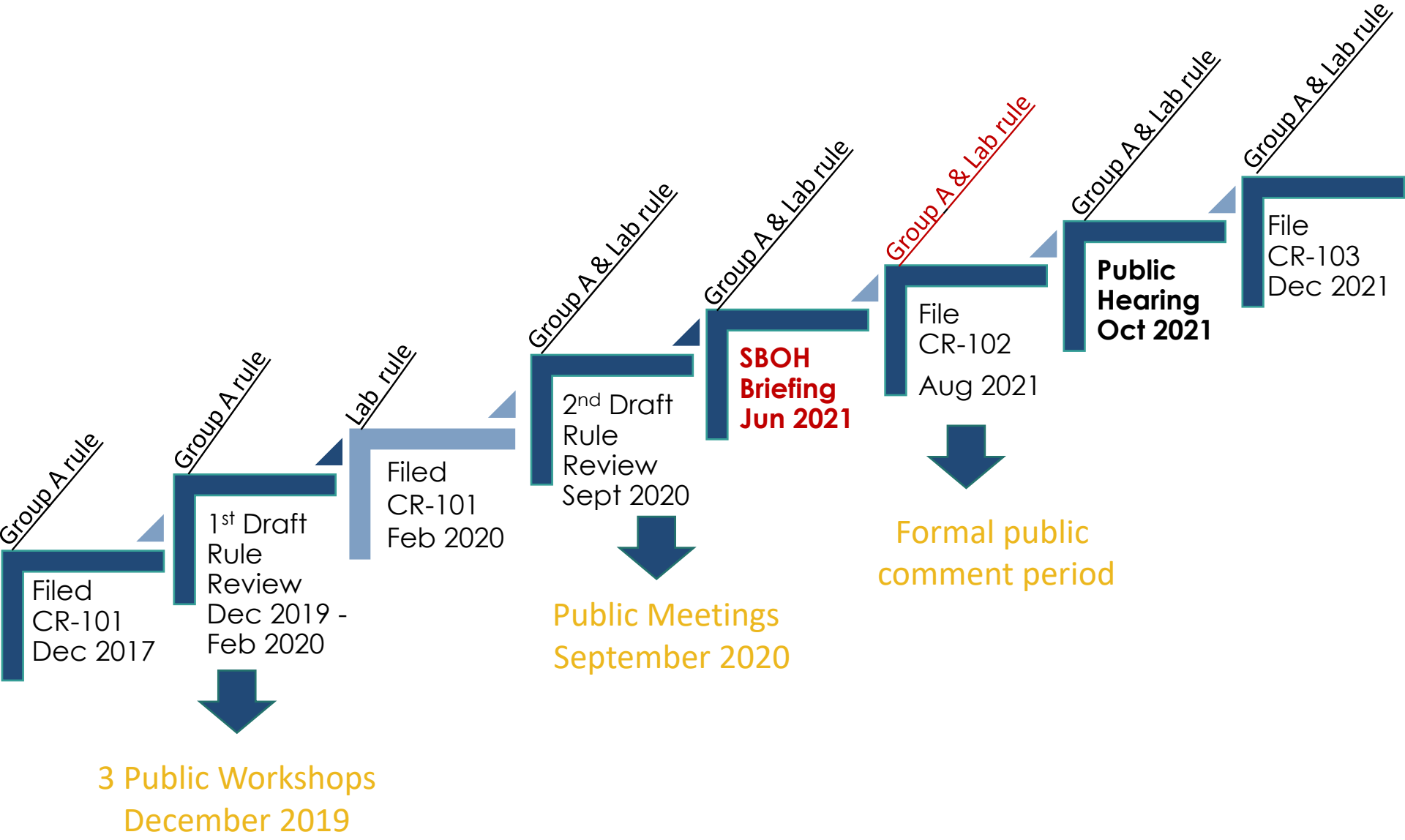
Abbreviation	CASRN	Method 533	Method 537.1
11Cl-PF3OUdS	763051-92-9	x	x
9Cl-PF3ONS	756426-58-1	x	x
ADONA	919005-14-4	x	x
HFPO-DA	13252-13-6	x	x
PFBS	375-73-5	x	x
PFDA	335-76-2	x	x
PFDoA	307-55-1	x	x
PFHpA	375-85-9	x	x
PFHxA	307-24-4	x	x
PFHxS	355-46-4	x	x
PFNA	375-95-1	x	x
PFOA	335-67-1	x	x
PFOS	1763-23-1	x	x
PFUnA	2058-94-8	x	x
4:2FTS	757124-72-4	x	
6:2FTS	27619-97-2	x	
8:2FTS	39108-34-4	x	
NFDHA	151772-58-6	x	
PFBA	375-22-4	x	
PFEESA	113507-82-7	x	
PFHpS	375-92-8	x	
PFMBA	863090-89-5	x	
PFMPA	377-73-1	x	
PFPeA	2706-90-3	x	
PFPeS	2706-91-4	x	
NEtFOSAA	2991-50-6		x
NMeFOSAA	2355-31-9		x
PFTA	376-06-7		x
PFTrDA	72629-94-8		x

SAL Specific Notifications

Routine or confirmation sample results for contaminants that exceed the SAL or state MCL under WAC 246-290-315 and classified as Tier 1, Tier 2 bioaccumulative, or tier 2 non-bioaccumulative under WAC 246-290-71006, Table 17

Tier Number	Bioaccumulative (Y/N)	Exceeds	[1]Required Notification	Required Number of attempts to contact DOH
Tier 1	Either	SAL or State MCL	Close of business same day	3
Tier 2	Y	4 Times SAL or State MCL	Close of business same day	3
Tier 2	Y	SAL or State MCL	Close of business next business day[2]	1
Tier 2	N	4 Times SAL or State MCL	Close of business same day	1

What Next?



Rulemaking Timeline

Questions?

To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email civil.rights@doh.wa.gov.