

Washington Departments of Ecology & Health

Per-and Poly-Fluorinated Alkyl Substances (PFAS) Chemical Action Plan (CAP) Advisory Committee Meeting

South Seattle College [Georgetown](#) campus | Tuesday, December 12, 2017 | 9:00 am to 12:30 pm | *Meeting*

Documents: [Ecology EZ View Website](#) Facilitated by the Ruckelshaus Center (Chris Page and Kara Whitman)

Attendees:

Advisory Committee Members *

Jessica Bowman*—FluoroCouncil
Alissa Cordner* - Whitman College
Joyce Dinglasan-Panlilio* - University of Washington Tacoma
Steven Gilbert*—Institute of Neurotoxicology and Neurological Disorders
Rhonda Kaetzel* –Agency for Toxic Substances and Disease Registry
Doug Kelly* (webinar) –Island County Environmental Health
John Lovie*—Whidbey Island Water Systems Association
Rory O'Rourke*, King County Department of Natural Resources
Erika Shreder* –Toxic-Free Future
Heather Trim* –Zero Waste Washington

Interested Parties

David Batts –King County Department of Natural Resources
Jacqui Beck –Environmental Resource Management
Deborah Bisenius (webinar) –City of Spokane Environmental Programs
Elinor Fanning (webinar) –Independent Consultant
Chris Generous –U.S. Navy, Naval Facilities Engineering Command
Melissa Gombosky (webinar) –Personal Care Products Council
Michael Grigat (webinar) –Crypton
Anne Harvey –Whidbey Waterkeepers
Peter Hildebrandt (webinar) –Alcoa Inc. & the Western States Petroleum Association
Peggy Horst (webinar) –W.L. Gore & Associates Inc.
Jason Hull (webinar) –US Airforce
Beth Jenson (webinar) –Outdoor Industry Association
Giffe Johnson (webinar), Vicki Tatum (webinar) –National Council for Air & Stream Improvement, Inc. (NCASI)
Erika Kinno –King County Local Hazardous Waste Management Program
Steve Korgenowski–FluoroCouncil
Amy Lee (webinar) –J. Crew Group Inc.
Katie Pelch –The Endocrine Disruption Exchange
David Plant (webinar) –Angus International Safety Group
Ivy Rosenthal-Sager, Nancy Uding (webinar), Laurie Valeriano, Carina Wells –Toxic-Free Future
Kai-Volker Schubert - Chemours
Stephen Swanson –Coupeville
Shirlee Tan –Seattle/King County Public Health
Jill Wood (webinar) –Island County

State Agency Staff

Elmer Diaz –WA Department of Health (DOH)	Lauren Jenks – DOH
Anne Knapp –WA Department of Ecology (Ecology)	Shon Krale (webinar) –Ecology
Barbara Morrissey –DOH	Cheryl Niemi (webinar) –Ecology
Brian Penttila (webinar) –Ecology	Darin Rice –Ecology
Kara Steward –Ecology	Kari Trumbull (webinar) –Ecology

Welcome, Introductions, Ground Rules, Roles/Expectations and Agenda Review (Chris Page)

After a round of introductions, the group requested adding an agenda item: to have Dr. Steve Swanson from Whidbey Island present information on issues specific to Whidbey and water contamination from PFAS/ aqueous film forming foam (AFFF). Chris Page then reviewed suggested ground rules: respect, transparent, direct, listen to understand, speak clearly and concisely, think outside the box, focus on solutions that work for all if possible.

Policy Expectations (Darin Rice and Lauren Jenks)

Darin Rice and Lauren Jenks shared some overarching principles for the Draft Interim CAP. These included:

1. Ecology and DOH are concerned about legacy PFAS as well as their replacements. The interim CAP actions will address issues with legacy PFOS/PFOA in drinking water, and support investigation into their uses for firefighting and training with the goal to prevent further releases. Short-chain PFAS appear to be less toxic and less bio-accumulative; however, the data are limited. Based on the properties of these chemical (persistent in the environment, highly soluble in water, mobile in soils), there is concern that the potential for contamination is high. In addition, they are more expensive to treat and are more likely to be taken up by plants (which brings concerns about volatility). For all these reasons, we believe these newer PFAS have the potential to be regrettable substitutes.
2. The agencies have a commitment to science-based policy. To do a good job, they need more information about PFAS chemicals in products today, a task made difficult by the confidentiality of some information. They are working on ways to get this information confidentially (through FDA/EPA, or through companies) to understand the scope of assessments FDA/EPA have completed: to what degree have federal agencies looked at the whole lifecycle of the chemicals/products? DOH and Ecology need the safety information to assess whether levels measured in our environment are a problem to human health, wildlife, or the ecosystem.
3. The agencies support “alternatives assessment” processes to find safe substitutes, and ask industry to participate. Priority products for alternatives assessment: AFFF, carpets and textiles, cosmetics, and food contact materials.
4. Agencies have a commitment to health equity. They have heard repeatedly: this is high priority and needs coverage in the PFAS CAP. They need to consider whose water has not been tested, risk and exposure, and what is known about the people exposed to these chemicals (e.g. subsistence fishers, people with older products in homes). They are working through the CAP chapters to ensure an emphasis on health equity.

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **C.** The precautionary approach is paramount to policy when there is not enough data. **A.** We need more information before making some decisions; where contamination has been found, they can make decisions.

RECAP of CAP Process (Kara Steward)

Kara explained that the agencies are developing draft interim recommendations for the draft interim CAP now, and will develop the Final CAP over 2018, completing it near the end of 2018 or in early 2019. The agencies shared options under consideration for the Interim CAP at the 11/1/17 Advisory Committee meeting. The DRAFT Interim CAP should be issued by the end of January (or early February) 2018, followed by a 60-day public comment period including two public meetings. The Advisory Committee will reconvene after public review. The agencies will begin working on interim actions in 2018 including addressing the following: contaminated drinking water, environmental contamination, aqueous film forming foam, and source identification.

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **Q.** Will there be policy recommendations for the 2018 legislature? **A.** None from Ecology; these would need vetting and the governor’s approval, which takes several months, prior to going to legislature.
- **Q.** When will the agencies decide what they will support in the Interim CAP? **A.** The Interim CAP draft will be out in early 2018 for a 60-day public review. We are moving on some actions right away on drinking water issues. The Advisory Committee will reconvene after the public comment period closes – probably in May or June 2018.
- **C.** Time is essential: Whidbey Island can’t form its own water district because the impacted wells lie inside a Class A water district; they cannot pipe in outside water, despite high levels of contamination. Airway Heights got bottled water (and wells shut down) right away; within two months homes were flushed and clean water was reestablished. **A.** What is happening in Coupeville is not waiting for this process to finish.
- **Q.** With limited resources, do Ecology and DOH have a strategy for securing public funding? **A.** Ecology and DOH have a process for budget packages. The Draft CAP advances the idea of money for alternatives assessments; however, not in time for the agency to advance a request for funding during this upcoming legislative session (agency budget requests are developed in the spring, reviewed by the agency for submittal to the Governor’s office by September). Ecology and DOH need staff and funding to implement many of the recommended actions, like the alternatives assessment. The agencies are doing a few things with existing funds, but will need to prioritize limited funds on what most needs to be done.

Presentations and Discussion:

Drinking Water (DOH- Barb Morrissey)

Barb Morrissey explained how DOH proposes to address drinking water problems in the Interim PFAS CAP. At least five areas in state have contaminated ground water, with documented problems involving Whidbey, Fairchild/Airway Heights, McChord, Fort Lewis, and Issaquah. EPA has health advisories for PFAS and PFOA— other PFAS are in drinking water, but the other compounds do not yet have federal advisory levels. The state needs to address this. The drinking water testing panel only contains six PFAS analytes, and more have been found. The agencies plan to use an expanded panel of 14 analytes for water going forward. Only 1% of public water systems (the largest systems) have been tested for PFAS; about 20% of WA residents are served by water systems that have not been tested. They don’t have a good estimate of the number of private wells potentially impacted. Testing and response is expensive, creating a lot of public burden, and must consider equity issues (mitigation, design, construction, ongoing costs etc.).

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **Q.** Can you explain the Unregulated Contaminant Monitoring Rule (UCMR)—can you proactively go out and sample; if so, who pays for it? What has DOH done to date? **A.** The UCMR is an EPA rule for addressing emerging contaminants. The City of Seattle and other big Cities were required to test water supplies after EPA issued UCMR3 (testing in 2013-2015) (and had to pay for it). The Military has done most of the additional sampling to date, under a directive in 2014 from the Department of Defense, which identified five contaminated drinking water sites in WA. The WA DOH division of drinking water does a lot of work when PFAS is discovered. DOH will reach out to systems around the State when contamination is found.
- **Q.** Do we know the locations of the greatest concentrations of AFFF used in WA? **A.** No.
- **C.** Health equity issues: UCMR is applied to systems greater than 10,000 people because they want them to pay for their own testing. This means smaller systems just don’t get tested. Whidbey only has one water system of over 10,000. This problem replicates over rural Washington, and this is a large burden to ask smaller water systems to pay for this testing. Would be good for the State to assist in paying for this work.

Interim CAP Recommendations

The first recommendation seeks to resolve issues caused by only having two PFAS covered by the federal health advisory. The CAP will recommend a broad State Board of Health rule for drinking water standards to address other PFAS found in drinking water in WA. Rulemaking may take a few years, and DOH may also develop options

for expanded rulemaking using risk-based testing with a risk map (under development). DOH wants to do broad testing of all public water systems using an expanded analyte panel, focusing on areas considered high risk but with testing open to whoever would like their system tested. DOH plans to work with local health departments to conduct outreach to the general public, water purveyors, and local governments with basic information, mitigation strategies, and testing information.

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **Q.** How many analytes are in the current drinking water testing panel? **A.** Three: compounds in current use that will breakdown. Plan on expanding to 14 analytes.
- **C.** We need improved test methods. Some can measure more analytes, but are not validated by EPA. EPA knows of this issue, but test method validation takes a long time. Could perhaps use the larger panel of 14 analytes as a screening device, though it is not currently validated by EPA. EPA is validating testing methods for surface water.
- **C.** The State Board of Health has the authority to do what they want. DOH will recommend they require a validated method for regulations. A validated method means that multiple labs, using that method, will produce the same results.
- **Q.** Could DOH test in impacted areas to better characterize what is in the water? It is urgent to gather the data. **A.** We have limited options, but may be able to do something. **C.** This is a public health issue, they don't want to delay action due to validation or regulatory constraints. **C.** Some of this depends on the costs of conducting expanded analyte panels.
- **Q.** Of the five identified sites in WA, how many are on the risk map? **A.** The map is in development; we are adding a layer of fire stations. We do not plan to resample places the military has already sampled. Also, marine transport uses AFFF—this should go on the risk map. Also, consider locations with high ski wax use.

Cost Estimates for testing all public water systems:

- Risk-based testing: about 600 samples, using a .4 full-time employee (FTE), would cost about \$235,000. They have committed to do risk based testing and outreach work to support rulemaking.
- One-time testing of all group A water systems: 8000 samples and 1 FTE = about \$2.66 million. This would require outside funding (or an outside contract, which increases the cost per sample).
- To test all Group A & B public water systems: about 24,000 samples and 2.3 FTEs would cost about \$8 million. There would likely be additional burden on the water systems and the communities: one-time expenses to hire consultants for site investigations, source control identification, and cost recovery for responsible parties, plus ongoing costs of filters, monitoring, etc.
- DOH is committed to respond to contamination events (approximately \$40,000 to \$60,000 + .15 to .3 FTE) and conduct outreach to water purveyors and potential point sources (approximately \$50,000 and .25 FTE).

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **Q.** Have you done any aquifer studies? Would using monitoring wells to understand how the chemicals move through the groundwater be more effective than sampling individual wells? **A.** Whidbey Island has put in some monitoring wells; and yes, dedicated wells are better for monitoring than drinking water wells.
- **Q.** Have these actions been prioritized internally? **A.** Yes: the risk based testing will happen; if additional information is gleaned, or more funding is available, then more could be done.

Environmental Contamination (Jim White)

Jim explained what environmental contamination looks like, and how the agencies can begin to address it. They need to find who is being exposed and how to reduce exposure, but longer-term solutions are vital. We need to know where PFAS-type contamination comes from, and where it is going, to come up with long term solutions. There are still a lot of unknowns, and with limited resources the agencies need to target efforts. They would like to develop “investigation levels” for vulnerable, exposed populations (that protect human health). Investigation

levels allow the investigation of how the chemicals get in the environment and how exposure occurs. The next step would be to identify best practices for investigating PFAS contamination and effective methods to reduce exposure. They need to see if the Ecology model for transport from soil to groundwater broadly fits PFAS or should only have site-specific uses. Sample data will help decide if this model is feasible to use or not.

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **Q.** Is it more important to protecting those in direct contact with soil, or protect against leaching. **A.** Both. We have to try to protect all exposure scenarios.
- **Q.** How does the military get involved? **A.** We are not currently partnering with military, and there is not much information-sharing at this point. Chris Generous (US Navy) said the Navy is working with DOH and EPA on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process (for Whidbey Island) focusing on exposures and site investigation. Part of the CERCLA process is to have public outreach; they are doing Preliminary Assessment work, history of uses, and an expedited Site Investigation.
- **Q.** What health endpoints will be reviewed? Will the agencies consider a range of compounds, including emerging compounds **A.** To begin, the agencies will build on the work of EPA and other states to evaluate health, but may shift if this does not appear sufficient.
- **Q.** What is the purpose of investigation levels? **A.** We would use these levels to prioritize action. If below investigation levels, a site would be lower priority.
- **Q.** Why would they use investigation levels instead of Model Toxics Control Act (MTCA) cleanup levels? **A.** The term “cleanup level” comes with a legal responsibility, right now PFOS/PFOA are not categorized as “hazardous substances” under MTCA, so Ecology does not have the authority to do cleanup. Step 1 would be to declare them a “hazardous substances,” then a cleanup level could be set. If they are declared a “dangerous waste”, then they could be declared a “hazardous substance.”
- **Q.** Who has the authority to regulate chemicals in the State? **A.** The State can: the Board of Health has authority over drinking water, and they are working on this. Darin Rice explained that they don’t regulate products, so designating as a “dangerous waste” is tricky. They can regulate it when it becomes a “waste” product. Designation as “waste” can only occur with leftover stuff someone needs to dispose of.
- **Q.** Whose method of use is to put it into the environment? Product waste remains in environment after its use? **A.** The issue is the distinction of product versus waste. Cleanup needs a whole lot more information. They could identify 1000’s of sites that will cost millions to cleanup.
- **C.** Can we stop people from using chemicals that create “dangerous waste”? **A.** They can consider having the CAP address this for specific chemicals, with a statement about a specific product/chemical (i.e. AFFF).
- **C.** Product manufacturers should test how compounds break down against enzymes in the environment. Industry should be responsible for making sure it can be broken down. Stockpiles will bring future problems; we need to get rid of the source! We need to address whether a compound is necessary for use.
- **C.** Would like to see the CAP tell readers how we got into this mess and how to avoid getting here again. We have a set of rules built around end-of-pipe, but the risk for use of chemicals starts up the pipeline.
- **C.** How will the CAP decide whether to use resources for source investigation versus addressing contamination? Prevention needs to be addressed while we address contamination (the most expensive). Focus resources on getting at the sources.

Firefighting Foam (Kara Steward)

Kara reviewed interim recommendations for source identification of AFFF with cost estimates. Some drinking water sources in WA have confirmed PFOS and PFOA above 70 parts per trillion (ppt). PFAS-containing AFFF appears to have contaminated groundwater, but more information is needed on historic handling, storage, current use, and stockpiles. The interim recommendations for AFFF include:

- Survey current and former use, storage, and handling to identify high risk areas for groundwater

contamination;

- Develop Best Management Practices (BMPs) for AFFF handling, use, and disposal;
- Conduct outreach; and
- Identify funding needed to remove and replace legacy AFFF.

Cost Estimates: (approximates)

1. AFFF survey to identify high risk areas: approximately \$110,000 + 1 FTE.
2. Develop AFFF BMPs and conduct outreach to AFFF users: approximately \$85,000 and a .75 FTE.
3. Funding for some replacement of legacy AFFF: approximately \$275,000 and a .25 FTE.

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **C.** Of 700 sites on the fire department list, not all have AFFF in storage. Estimates for removal/ incineration may be low.
- **C.** What do we do about locations using Military Specification (MilSpec) requirements, such as airports? MilSpec was developed to save lives, as it does today. There is widespread recognition that things need to change, but the need remains to save lives, prevent armament from going off, and put out fires quickly. How do we do this while protecting fire fighters, and protect the environment?
- **C.** Navy uses MilSpec; could the Navy remove the fluorine? **A.** Yes, but the Navy left it in for performance reasons. How do we keep the performance and remove the fluorine? No PFAS-free foam yet meets the performance characteristics to control large-scale fires. AFFF is only needed for a high-hazard fire. It is wrong to use it on a house fire.
- **C.** Prioritize outreach to the major users: BMPs for military and airports, a select group of AFFF users.
- **C.** Suggestion: survey firefighters on their practices and habits for using MilSpec. How are you handling, storing, etc. your products? Then use the Firefighting Foam Coalition guidelines as a start for education.

Source Identification Problem (Kara Steward)

Kara reviewed proposed actions on source identification. Ecology needs to do work to identify the PFAS chemicals, their routes of exposure, and the exposure amounts. They need to conduct research to prioritize actions to protect the public and the environment, including working with EPA/FDA and Industry to understand what products are in use and increase data-sharing. Available data are insufficient to determine the safety of short-chain PFAS. Recommended actions include:

1. Request and review data: ask EPA and FDA for data on the product approval process, and request data from industry for current PFAS in consumer products. Estimated cost: \$30,000 + .25 FTE.
2. Research PFAS in industrial, commercial, and consumer products to identify ways to reduce exposures. This includes testing for long-chain PFAS in imported products. If we are truly importing long-chain PFAS, then line up actions. For product testing, use as many analytes as possible. Estimated cost: \$100,000 + .75 FTE.
3. Alternatives assessment (AA): evaluate and promote use of safer alternatives for phased-out PFAS in consumer products. Estimated cost of each AA: \$ 550,000 + 1 FTE. Each AA takes about 1.5 years.
4. Promote BMPs for reducing people’s exposure to PFAS and release to the environment. Estimated cost: \$75,000 + .5 FTE.

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **Q.** EPA and FDA Data. Toxic-Free Future reviewed hundreds of food contact materials, and only six were on the list of those containing PFAS; what would EPA/FDA data show? **A.** The state would like to review the data the industry submitted to EPA and FDA for the approval. We will look into agreements with industry and request data from EPA and FDA, EPA has said they did an “evaluation hundreds of PFAS chemicals” but this data is not publicly available.
- **C.** It is unlikely FDA will provide this information. **A.** The idea is to include what is available and then build on it. We would ask industry to provide (with redacted info) full data that exist.

- **C.** FDA and EPA should consider end use and environmental fate. Industry must meet a high environmental safety bar. Toxicology data are required before going to market. Industry is under a Consent Order – for each product and company, anytime data comes back that is not acceptable to EPA, they can pull the Consent Order.
- **Q.** Have they tested the alternative foams against AFFF for performance? **A.** Yes, there is an American-made foam that puts out fires five seconds too slow. Is this really a reason to exclude it from land-based use?
- **C.** Suggestion: replace AFFF with non-fluorinated foams for uses that don't need to meet MilSpec. The military is discussing what MilSpec requirements can or should be changed to allow more options for foams.
- **Q.** What Information is there on AFFF that has been moved to shorter chains? **A.** Short-chain AFFFs do work. All currently-manufacture short-chain AFFF come from companies in the FlouroCouncil. They suspect there are still companies outside US making long chains AFFF, but FlouroCouncil members and the Firefighting Foam Council have all switched to short chains.

Update: Chapter Updates and Interim CAP (Kara Steward)

- Draft interim CAP will include a summary document supported by “chapters” to make it more readable. May call some folks with follow-up questions (based on feedback) to fine-tune the document.
- Based on comments, the project team has:
 - Clarified individual PFAS compounds or subgroups.
 - Added graphs and tables to support study summaries.
 - Incorporated additional information from suggested references.
 - Added explanations where comments indicated confusion
 - Added an editor to remove overlap, improve consistency, and integrate related discussions.
 - Been working on comments on equity issues (adding information about food contact materials).
 - Considered multiple comments on scope of PFAS CAP. The State is concerned about legacy PFAS (PFOA/PFOS) as well as the fluorinated replacements.
 - Narrowed down the Estimates chapter (formerly Uses/Releases) to focus on WA. That chapter went through significant revisions: Global data used to estimate WA portion (PFOS/PFOA); followed EPA 2009 to estimate PFAS in ‘typical’ home. [EPA, 2009. Perfluoro carboxylic acid content in 116 articles of commerce. EPA/600/R09/033]; applied PFAS concentration data to landfilled volumes of consumer products in Washington; identified potential WA businesses using PFAS and AFFF; and summarized PFAS reporting to WA and product testing studies.

Next Steps:

Ecology/Health will finalize the Draft Interim PFAS CAP. 60-day public comment period beginning in early 2018, with public meetings targeted for May/June 2018. The agencies will review public comments and reconvene the Advisory Committee in the late spring or summer as the agencies address them and work on the Final PFAS CAP.

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **Q.** What is the public meeting format? **A.** It is required to post a notice about the CAP for public review in the state register. Ecology will send out notices across the state so the public knows of the document, then hold a pair of public forums (they need to figure out dates/times and locations before public notice).
- **Q.** Can we see more detail on the recommendations before the draft is public, with time to provide feedback on the interim recommendations? **A.** There is not time between now and the end of January for another round of feedback. If you have suggestions, you can send them, but there will not be another round of chapter updates. You will have time to comment during the public comment period.
- **Q.** There is a large public burden to deal with long-chain PFAS alone. Is industry willing to provide resources to the State to test and address these chemicals, monetarily or other? **A.** When it comes to cleanup issues, responsibility allocation would come into play.

- **Q.** Can industry offer any voluntary assistance? What about data: has all publicly available data been provided? **A.** individual companies would need to work with the State to make sure confidentiality gets handled. Not all manufacturers are part of the FluoroCouncil.
- **Q.** Have you included more information on the health impacts of short chain? **A.** The Endocrine Disruption Exchange shared a review of the short-chain PFAS, and several of short-chain compounds are showing similar health impacts to long chain.

Additional Agenda Item: Dr. Stephen Swanson on Whidbey Island/Coupeville issues

Dr. Swanson explained what he, his family, and others have been dealing with after learning of contamination in their water. Their test results showed 440 ppt, and they have been on bottled water since (the Navy provided the bottled water to everyone on the seven contaminated wells). There is no test animal for this group of drugs: clearances differ among species—humans have different clearances than rats. With PFAS in water, your dishes, laundry, steam from shower, anything you wipe with a towel—all these have layers of PFAS.

Six months after learning of contamination, Dr. Swanson decided to test his blood (cost \$700). (*The lab data is posted with the December 12, 2017 PFAS meeting documents.*) The average blood level for people exposed to PFAS not careful what they are doing is typically 100 times their water level. Different subjects in the same home eating the same food can have different levels, depending on how much water they consume and how large they are. Testing found PFHxS with a half-life is 8.5 years that has the same toxicity as PFOS (except cholesterol). PFHxA was also found, which is an endocrine disruptor. While PFHxA has a half-life of 36 days, short-chain half-life is only important if you are not constantly exposed.

Questions/Comments (Q-Question, C-Comment, A-Answer)

- **C.** Different sites have different filtration and mixing. Site 1-6 are tap water; the other is a well in town. Adding up the compounds of known problem chemicals, three wells exceed the EPA limit of 70 ppt.
- **C.** Coupeville and Smith Prairie are an alluvial system with gravel, rock, and sand: the porous material covers an unprotected aquifer.
- **C.** 1900 hookups need clean water now. If they filter, they will need to deal with the contaminated activated carbon. Coupeville needs help (from the Navy) to address contamination in the water supply.
- **Q.** PFHxS was/is not produced by FluoroCouncil members. 3M produced it prior to 2002 (no longer made in U.S.). This is a 3M footprint.
- **C.** Exposure: if you take it in, a percentage gets absorbed then circulates around the body. It impacts lungs, gut, kidneys, bound to protein. Some leaks out, and it is a urinary tract irritant (cancers related).
- **C.** 3M made PFHxA; we don't know of any coming from newer products.
- **C.** Whidbey Water Keepers feel strongly that the CAP needs to support the State Board of Health to set a drinking water standard, and address these compounds as a class.

Kara Steward recapped the next steps and the meeting ended. The next meetings of the Advisory Committee will be scheduled in 2018, likely starting in May or June.