PFAS Subcommittee Meeting Notes

Date: June 20, 2024

Time: 9:00 AM CDT/ 10:00 AM EDT

Attendees:

Arnold, Melanie (EEC)
Jackie Logsdon
Hancock, Nancy S (EEC)
Thompson, Josh
Young, Jamie
Caywood, Sarah (EEC)
Mills, Todd W
Neal, Russell S (EEC)
Amy Stoffer
Bevins, James (EEC)
Herbert Woike
Mary Carol Wagner
Carissa Garland - GMWSS
Dowling, Elizabeth F (EEC)
Arianna Lageman (KRWA)
Maggie M. Neal
Booth, Dale M (EEC)
Traylor, Madeline E (EEC)
Doug Kimbler
Osterman, Stefanie C (EEC)
Eric Zhu
Cooper, Ashley
Alex Conn
Heather King
Johnson, Carey M (EEC)
Catalfo, Carole (EEC)
Goodman, Rebecca W (EEC)
Marshall Carrier
Jason Petersen
Kate Wood Hall
Dutta, Sharmista
Jacobs, Alicia (EEC)
Ric Federico
Daren Thompson
Brown, Morgan
Pisano, Tony

1. **Update on DEP PFAS sampling efforts: Presented by Melanie Arnold**
   - Drinking Water

i. Phase I: 2019 study where we looked at 81 water treatment plants across the state. A targeted approach, looking at places where we thought we might have a better chance of seeing PFAS.
ii. Phase II: Pick up some of those systems that we hadn't sampled in 2019 and get results there. And those that were sampling for UCMR5 were left out.
iii. Phase III: To get a more complete data set, starting sampling in 2023 and will continue into 2025 to meet different goals that we have, including:
    1. Look at the public, non-transient, non-community systems and collect some data for those as well.
    2. At least two sets of results from any of our community water treatment plants and at least one of those sets of results being from the Division of Water. With UCMR5 data not reporting below MRLs, this is helpful for us to get more comparable data across the board.
    3. When an MCL has been exceeded, we're doing follow-up outreach to check in and provide support. Maybe do some additional raw finish water sampling to see if it was a one-time event or if other things could be helpful to explore and better understand the sort.
    4. Some of the smaller systems that weren't included in UCMR5 with getting some initial data and helping to fulfill some of the initial monitoring requirements with the National Primary Drinking Water Regulation.
iv. Additional follow up efforts:
    1. We've looked at some watershed-style sampling, waiting for the water levels to go down now to make it a better, more representative time for what we're looking for.
    2. Different well sampling around certain water sources to get a better understanding of where the PFAS levels are coming from and what we might expect in the future.
    3. Some of our drinking water staff are working on a Jar Testing approach to help explore treatment options using powdered activated carbon.
v. Summary:
    1. In 2024, 90 finished water samples have been collected. We've also done raw water samples as well in 2024 just to capture at the same time and have a better understanding of that source water while getting the finished water results. We've sampled about 61 different water treatment plants, primarily small plants not participating in UCMR5. And from those results, we've not seen anything above any of the EPA's MCLs
    2. Between our 2023 and 2024 sampling, we've done about 240 finished water samples and we've seen so maybe 6 systems with results above the 4.0 ppt for PFOS. Two had a result above the 4.0 for PFOA.
    3. Not seeing PFBS. Not anything near the 2000 ppt water-based health level.
    4. PFHxS another one in that EPA's looked at. One 16 ppt and one 10ppt, but not really any repeats there.
    5. PFNA, we're not really seeing anything over that 10 ppt level.
    6. Only eight systems that had detections GenX, 5 systems with the detection along the Ohio River.
    But just the one to two parts per trillion, so nothing like we've seen in 2019.
    7. With the UCMR5, I think we've had maybe around 7 water treatment plants that had a result above one of those MCL levels of PFOA, PFOS, and PFHxS being the PFAS of concerned there.
    8. Overall, less than 40% of our community water treatment plants, we've had a result above one of our MCLGs based on the detection limits that we have available.

9. It's mainly that PFOA and PFOS and our lab has detection limits below one part per trillion typically. So, we are talking very low, low levels here, and less than 10% of the community water treatment plants have had results above an MCL.
10. Most of the repeated results are below the level, so there's just a very few systems that may have repeated results above a level.
11. Ohio River, Tennessee River, and some areas of the Jackson Purchase aquifers are areas of concern.
12. We acknowledge with PFOS we're seeing that all over the place in Kentucky. And so it's not surprising that it's popping up in a lot of our water source waters.

vi. It's a goal to be able to do some additional summaries, possibly summary paragraphs that can be updated maybe every six months or so on the PFAS website rather than a formal report as we continue to collect data.
    a. i.e.: X number of samples received as of this date. This many percent of these were indicating results above the MCLG but below the MCL. This percentage of results thus far indicates results above the MCL.

- Ambient Groundwater Network
  i. We have about 59 stations, wells and springs, private, public, and some municipal sources and we've been incorporating PFAS sampling into that regular rotation. We've started with just our public stations. And then we also continue to do PFAS testing in fish tissue across the state. It's a useful way for us to be able to see what may be in our source waters. It's just not showing up through the water sampling that we're doing, but we do also collect water samples during these fish tissue testing.
- Ambient Rivers Monitoring Network
  i. We're also looking at how we can incorporate PFAS into our regular ambient rivers monitoring network. We were looking at starting with our approximately 73 primary stations. Just running into trying to figure out appropriate decon methods that are still feasible when you're trying to do that many sampling stations.
- Departmental Work:
  i. We've been looking at domestic use wells, particularly in the western part of the state.
  ii. We're offering voluntary wastewater treatment plant sampling, where we will sample biosolids effluent and influent.
  iii. Updates to our regs relating to landfarming biosolids. This is more waste management, but it relates to making sure before people submit an application to land apply biosolids that they are notifying landowners, adjacent landowners, or those applying the biosolids if there is a potential industrial pretreatment source constituent in that biosolids. So, before we even get the application, it's supposed to occur.
  iv. Early stages of investigating AFFF management and disposal that does have the PFOA and PFOS and you know, apparently some of those containers say to dispose of the AFFF at municipal wastewater treatment plant and we would like to avoid that happening. We would very strongly encourage that is not the thing to do at this point. We need alternative options there.

Maggie M. Neal: Can you piggyback on the mercury sampling done on turtles each year?

Arnold, Melanie: We are working with the Kentucky Department of Fish and Wildlife Resources.

We've been talking to them for a number of years. We are working with them on testing muscle for PFAS constituents.

Maggie M. Neal: For land farming, what are we looking at for that? Because there are quite a few water systems and wastewater systems that landform. Are we looking at working with solid waste as well to see what the regulations are on their landfills? Because we're already seeing landfills telling wastewater systems, they're not going to accept their sludge anymore just because they're running out of space. We know this is going to start hitting the landfill sometime soon and they're going to adopt their own regulations, probably limiting what's coming in. Is there any joint effort between Solid Waste and the Division of Water to look at those?

Arnold, Melanie: Our PFAS strategy is handled at a commissioner's office level, so that means waste and water are all talking and working together on all of this, and it is a big concern. It's very complicated and landfill is one of the best places to send waste that has PFAS, so we don't want to do anything to jeopardize that relationship. We aren't looking at putting any specific PFAS limits relating to the wastewater or biosolids at this moment. EPA is just doing at the study level and looking at the influence for wastewater treatment plan. It's a complicated, challenging issue that we're working on and trying to think of different ways to address and looking at what EPA has in the works right now.

Maggie M. Neal: I would say if you were looking nationally, you might reach out to SWANA.
They are the solid waste national group, and they would probably have a lot more headway on what regulations are being done in other States as far as landfills and solid waste.

Arnold, Melanie: I think we're going to be speaking with them. We've got some additional follow-up and discussion going on at that national level in August.

Doug Kimbler: The new CERCLA reg goes into effect in July. If a wastewater plant has more than a pound in 24 hours of PFAS released, then they must report that. There's no sampling guidance on that. That's not on our permit. We're voluntary sampling right now. What's the correct path forward? It's just there was not a lot of guidance given from that level unfortunately.

Arnold, Melanie: They're doing the discretionary. Enforcement has specifically said they're not looking at the municipal wastewater drinking water for that. I have not heard of any requirements for wastewater or drinking water systems to sample for those constituents, but I can check and see if we could share more about that.

Arianna Lageman: I think he's maybe asking about the proposed information collection rule, which is going to require some large wastewater treatment plants to collect and analyze wastewater and sewage sludge samples. But I don't know who's going to be required, and I don't think that's finalized yet. I think it's just proposed, but again haven't kept up with that anymore. There is one out

for PFAS right now. Pace Analytical is doing a webinar on that next month with Paul Jackson. They're doing one specifically on the information collection rule for wastewater and P FAS shenanigans in July. I think it just hit the Federal Register in March, so it's very new.

Arnold, Melanie: Thanks. These meetings are very helpful to get a better idea of what questions you all are coming up with.

2. Subgroup Report-outs

1. Communications Subgroup: Chair Kelly Smith has been on work travel. The initial meeting for this subgroup has not been scheduled.

2. Funding Subgroup: Chair Russell Neal reported the subgroup's discussion of funding options available through borrowers. The meeting occurred on 6/14/2024.

    - Goal: Develop a master document with funding options that presents eligibility, links, contact information, etc. for borrowers.

        i. This will be a living document and we can share the draft with this workgroup after the meeting.

        ii. Eligibility details are to be added, included specific sizes or disadvantaged status

        iii. DWSRF, KIADLG, New Waters Program, RD (They don't have health-based priorities similar to the division of water in our in our cabinet, but they are strictly population and it may be MHI based), CDBG, ARC, Delta Regional Authority, and EC-SDC and Rural Water.

        iv. Thing this list currently does not contain is our private lenders, all of these are state or federal lenders. I know there's a list of private lenders, but I've just neglected to add those to this list. I'd like to investigate those more before they're added. I can share this list after the meeting.

    Amy Stoffer: Since I'm in the bench and pilot testing subgroup, is that an eligible use of these funds to pay for any preliminary type of testing before you get to design and construction?

    Russell Neal: I believe the EC-SDC is. I would have to look into SRF. Other than that, I'm fairly certain there there's a pretty wide array of funding options for the waters program. I'm not sure about RD. From what I saw in the RD funds, it's just for construction activities. So we could, we could delineate that as like the stage of whatever people post development they're in, whether it's actual construction or if it's some kind of preliminary testing or planning and design. And that could be delineated here as well under the eligibility requirements, but specifically, yes, specifically to answer your question right now, I don't know fully from all the funding sources, but we that's something we can add.

Arnold, Melanie: Part of what we're trying to figure out on the EC-SDC side is what we can manage project-wise. If we have a lot of small projects that we need to fund and be managers of, it might be a little more challenging. I think we've been talking about ways we can make this into a partnership or something where someone else can help with the management of a bunch of small similar projects. Or are there other ways that we can tackle this to be efficient with the resources that we have so that we can support as many systems as possible responsible. So curious on any feedback there or partnership opportunities.

3. Pilot Testing Subgroup: Chair Amy Stoffer reported the subgroup's discussion of bench and pilot testing development and access. The meeting occurred on 6/18/2024.

    - Goal: Review the Jar testing procedure that is being developed.
    - Goal: Develop a road map to compliance for water systems using information from AWWA, including the AWWA manual MS-76.
    - One of the consultants at the ASDWA annual conference said that the bench test, the rapid small-scale column test (RSSCT) generally costs around $40,000 and takes one to three weeks. If somebody already has the setup, there are going to be various consultants, maybe some universities, others might have that set up to do those tests.
    - What I don't have is the list of who can do those, but hopefully, those resources will start making themselves known. Just looking at the schedule, it's certainly not too early to start conducting those types of tests.
    - Since the monitoring starts in three years and compliance starts in five, anybody that needs to have treatment running around June/ July 2028 to comply with the MCLS by April 2029. We are exploring if those bench testings are good at screening different types of carbon in terms of does this carbon have a better capacity at removing targeted compounds than another type. That can be done I believe also with the resins for anion exchange.
    - The bench tests are not good at determining the breakthrough period for the media. That comes more from the pilot testing. The pilot testing can also determine if there's other things that might happen as these processes run longer. The same consultant indicated a pilot test could be $500,000 and operate for six to 12 months. That's why I'm really interested to talk to Jason. I think they may already be doing a pilot. I have no idea if he's willing to share. What is costing them if that information is accurate?
    - For design and construction, you're looking at another 18 to 30 months of time and that's probably if you're efficient at keeping things moving along and your procurement process.
    - That is a two-to-four-year time frame depending on how long each of those tasks. And from where we are, we have about four years from now to have that treatment in and running.

- That's why I think it would be good at some point to get a sense of in Kentucky, how many systems are going to need to go through this process? We're all going to be competing for the same resources to get this done and I'm not sure where all the money's going to come from or assistance for some of these small systems to pay for these things because they're not cheap and they can be very complex.
- We are going to see if we can put together any resources for a system to try to build their own pilot, we have built our own pilot columns. If you can't get a skid from Calgon or some of the other vendors, it's not impossible. We're going try to come up with a materials list and an IKEA diagram on how to put it all together if somebody wanted to do that. I don't think that these vendors are going to have enough skids available to loan out or let everybody in the country that's going to want one to have.
- USEPA does have a model on their website: Ad Design S. I have zero experience with it, but EPA in Cincinnati developed that, so that is a resource that maybe can help systems figure out that specifically on granular activated carbon.
- Not all carbons are created equal. One system showed that one vendors carbon performed quite a bit better for their PFAS than another so that's why these tests can be very important.
- The Kentucky, Tennessee and Ohio AWWA are co-sponsoring a workshop to be held at the treatment plant for Northern Kentucky, as well as Greater Cincinnati Water Works. This will be a 6-hour workshop and we will be having presentations from the utilities of various vendors as well as USEPA. We've asked us EPA to talk about mention pilot scale testing as well as some of the other vendors.
- There will be tours of our advanced treatment building and Cincinnati will host a tour for their contactors as well as their onsite reactivation facility.
- Our next meeting is July 30th, 2:00 to 3:00 PM if anybody else still is interested in volunteering for this committee. I have agreed to continue with this committee even after I retire on August 1st.
- There are some concerns with startup shift and arsenic release when you're using GAC.
- Mayor Carol's going to talk with EPA about any reference material they may have for bench and pilot scale testing, so we don't have to start from scratch.
- Somebody was going to check with Terry Humphries to see if there's any thinking whether pilot testing will be required by the cabinet. Certainly, a system may want to do it even if it's not required to confirm how the performance will be and how to design their system in terms of empty bed contact time.

Arnold, Melanie: You haven't heard back from Terry?

Jackie Logsdon: I have not heard back from Terry. I'll follow up with him.

Young, Jamie: Could you just briefly explain the column pilots in terms of is it looking at the activated carbon?

Amy Stoffer: Just can't use Teflon materials anymore if we're looking at PFAS. There's an RSSCT test you might take the F400 carbon if that's what you're going to use, and you must grind it up small. And what you're trying to do is in a very so what's called rapid like one-to-three-week time frame, you might put 55 gallons of that through that media. It's a little tiny column and then you see how one that's going to break through. You can possibly scale up full scale from those. It might be up to the utility, or eventually the cabinet, as to whether you need to go past that, but that will give you some sense of what your treatment goals will be in terms of how long that carbon may last. The column tends to be a little bit bigger. There are different size columns. I want to say back at EPA, I think they were 1 1/2-to-2-inch diameter columns and you put the media without being crushed up into smaller sizes into that column and then you're operating those at the same flow rate that you would be doing full scale. It's a mini version of what you would be doing full-scale, so that's where you operate it. Let's say usually at least six months, sometimes 12. If you really need to see different seasonal variations, seasonal variations are a big deal when it comes to organics loading. If your performance or reactivation replacement schedule was based on disinfection byproducts, that's where the seasonal becomes a big deal for PFAS. Just the work that I did with AWWA across the country, there can be seasonal variations of PFAS, particularly in rivers. Lakes and reservoirs tend to be a little a little less up and down. And so you're running the water through that glass column and you're looking for when the breakthrough. So if you're doing it for PFOA, you want to run it usually until you see PFOA at the bottom and you can keep running it to see at what point of exhaust you can go to. So if your target is the MCL of four, then you want to see is it going to take 12 months or 24 months of operating for it to get to 4. If you're if your goal is half the MCL at two, then you're not going to be able to run it as long before you must do something with that media. So, either take it out and completely replace it with new or reactivate it and we didn't see any fouling or any issues with GAC either, well we didn't pilot it, but in full scale, but there could be if you're in a groundwater, maybe there could be some fouling of the media from some of the things that are in groundwater. Does that help understand?

Young, Jamie: If it's at a pilot scale, would you set up multiple columns with different charcoal cause the way you made it sound is different charcoal for different activated charcoal for different plants works differently. Do people put up different columns to test at the same time to see if one works better than the other?

Amy Stoffer: Somebody just sent me a picture of their pilot. They have 8 pilot columns on their skids. You could do different things depending on what your skid could do with those columns.
So you could have different media, if you wanted to spike it was something you could. That would be up to the utility and if they're working with a consultant is how they want to do that.
Obviously the more things that you're testing at this level, the more things you're sampling, the cost

will go up. That's why the RSSCT is good at narrowing your choice a little bit.
So it's going to be up to your utility and the cost that they want to spend piloting.

Eric Zhu: Just in terms of the testing, it's screening different material. I think RSSCT is the typical tool first to cut down to maybe 2 options and then the pilot is more for evaluating operational factors designed to support design for scale design.

3. EC-SDC Implementation- Melanie Arnold
Jackie Logsdon: I would like Melanie to have a few minutes to talk about the ECSC.

Melanie Arnold: We're getting ready to put out some implementation guidance that we can share with water systems relating to the EC-SDC. We currently have around $10 million for a variety of projects relating to emerging contaminants. And I know we've talked about it in a few different areas, but you know, potential feedback before we put out this implementation guidance.
If anyone thinks there's other priority emerging contaminants that we should be trying to look at, you know our lab wouldn't be able to adopt any new parameters soon. But if there are other things besides PFAS that we should be taking a closer look at, please feel free to email me. For eligible applicants, we are looking at small communities as less than 10,000 individuals. For disadvantaged communities, we're looking at different EPA tools like the climate, economic justice screening, tool day screening tool, and recovery potential. And then also like the HI as well, just like SRF. Another thing is doing an open call for projects. So, if there's feedback there on timing, how long would people need? What would be reasonable after we announce a call for proposals to give people enough time to send some general information? Couple of pages at least to tell us what their project would be, and estimated cost and we could follow up and ask for more specific details for the projects that we think we can fund.

Arianna Lageman: How long will it take for a utility, once they make an application, to gain access to that money?

Arnold, Melanie: We don't have a lot of experience with that yet. We've done one. It probably took four, or six months. It depends on getting it through our whole finance cabinet and getting an MOA between us and the system that's acceptable to both.

Arianna Lageman: The only drawback to these funding sources that are out there is that some of them may take upwards of a year to get that money into the systems hand. And as Amy pointed out, to do the pilot testing, if that's going to be required at the state level, we're looking at four years to get this stuff in place and we have four years until we need to have it in place to comply. Now, fortunately, fewer than 10% of the system so far looking like they're going to be exceeding the MCL. That gives us the rest of us a little more wiggle room but just wondered how quickly some of that money could be available.

Arnold, Melanie: We are hoping to have another $10 million maybe in federal fiscal year 25. We're trying to get more information from EPA and where we might get a second allotment of those funds. The challenge is just ironing out milestones that are specific enough that we can check the boxes. And have all the information that we need to help ensure the project's going to be successful.

4. **Determine the next meeting date & time.**

Jackie Logsdon: Any topics for the next meeting can be sent via email. I will send out a Doodle poll for the next meeting with dates in a month.

Next meeting is set for August 7, 2024.