

Cathy Janasie (00:00):

This webinar is a part of our National Sea Grant Law Center webinar series. I'm Cathy Janasie. For those I have not met, I'm a senior research council here at the law center. I'll also be presenting today with Amy Kraitchman, our Ocean and Coastal law fellow, who's been working with me on a lot of our PFAS research over the last year and a half or so. So we're excited to share some of what our research is to give you more of a legal background for PFAS. So just a quick few housekeeping notes. We do have everybody on mute at the moment just to reduce the background noise. Feel free to use the chat box at any time if you have any questions. Instead of coming off mute, we will have plenty of time for q and a at the end of the webinar. The webinar will be recorded and posted to our website after the fact, so it'll be there as a resource to watch again. And then please private chat, Lauren Fremin for any technical issues that you are having and she will help you try to figure them out.

(01:23):

So for those of you who are not as familiar with us, we always like to share a little bit of background information about the National Sea Grant Law Center. We know not all of you have had the chance to work with us, but we were founded in 2002. We're housed at the University of Mississippi School of Law, and our mission is to conduct legal research, education, and outreach for this wider Sea Grant network as well as their stakeholders. So if you're interested in our work, we have our QR code right up there to take you to our website and it has tons of our projects and what we've been working on of late. And we also encourage you to follow us on social media.

(02:13):

But with that background kind of out of the way, I kind of want to get to what we're all here to talk about. So today's webinar is about PFAS per- and polyfluoroalkyl substances. You'll notice that I'm a lawyer, not a scientist as I try to pronounce some of these compounds, but it's these groups of over 15,000 manmade chemicals that have been used in industry and consumer products since the 1940s. And the reason why they've been used, and there are so many of them, is because they're durable and resistant to heat, oil; really great products coming out with non-stick cookware, water repelling clothing, stain resisting fabrics, firefighting foam - really useful when looking at them not like chemicals. Why do we care about PFAS and why are they such kind of a hot topic right now? Well, they're stable. They resist degradation. They're persistent in the environment.

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They accumulate organisms. They're mobile and they're toxic. And science is always changing with PFAS as I'm sure many of you know. But here I've used EPA as a source to kind of just let us know where we are with peer-reviewed scientific information and health impacts. So looking at impacts on reproductive effects, developmental delays, increased risk of some cancers, impacts to the immune system interfering with natural hormones, and then an increased cholesterol level or risk of obesity. So while they've been useful in industry and consumer products, we're seeing these harmful effects for them in human populations. PFAS sources are everywhere in the environment. They're ubiquitous in particular, a lot of what, at least I'm going to cover on the federal side initially is really going to revolve around drinking water, lake water, the biosolids, impacts from agriculture as well as firefighting foam.

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That's where we've seen a lot of the regulation so far. And again, regulation is always evolving as the science is always evolving. And so Amy and I have given quite a few of these webinars. We're always having to update what we're finding. This map is from the environmental working group. If you've never checked out their site, they have a PFAS contamination tracker. And so they are showing drinking water that's above the EPA limit where it is below the limit, as well as military sites and other known sites. And the military sites are going to get back to that firefighting foam and the release with them. And so if you actually go to their website, this map is interactive and you're able to zoom in and see. But again, showing

how ubiquitous PFAS are for us in the environment. And that creates a really challenge for regulation because how are we going to deal with something that we're finding everywhere we kind of look for it.

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So getting into the regulation, the way the webinar is going to go, I'm going to do a brief update on where we are on the federal level and then Amy's going to share some of what she found under her state scans in the southeast. And then I'll wrap up what we've found in the Great Lakes - those are our two main products at the law center that we've been working on. But we do have plan to do a national scan of all kind of Sea Grant states over the next year or so. And so our research is always I evolving and it's definitely a topic that we're prepared to tackle for the next near future. So on the federal side, I'm going to start with drinking water. So drinking water under federal law is regulated under the Safe Drinking Water Act. And so EPA is directed to regulate any contaminants and drinking water that can adversely affect health.

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And what I want to point out is that the Safe Drinking Water Act is only applying to public water systems. And so lately I've gotten a couple questions to clarify, why aren't private wells regulated with some of these drinking water standards? And that's because the way federal law is set up, private wells are never covered by any of the contaminants that are regulated under the act. And so when you think about PFAS maybe getting into groundwater, that can be a huge gap for the public with regulation. So under the Safe Drinking Water Act, once EPA goes through a process to identify contaminants that they want to regulate, they set two different kind of levels. The first is the Maxim contaminant level goal, which is not enforceable. It's kind of if we could have everything our way, what would we set the level to be to ultimately protect public health? It then also sets what's called a maximum contaminate level, and those are the actionable levels that the public water systems are going to be subject to with regulation. And importantly here, in addition to health risk, EPA can take feasibility into account. So thinking about how feasible is it for public water systems to be able to treat the water to get these chemicals out of the water to a certain level.

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So in spring of 2024, the EPA finalized drinking water standards for several PFAS contaminants, including the ones listed here, PFO and PFOS are at four parts per trillion for the regulatory level. And then EPA also regulated a handful of other chemicals. And so those kind of basket of other chemicals, they introduce what's called a hazard index where they're going to regulate public water systems to see if these mixtures of these bucket of other PFAS chemicals are going to trigger that hazard index. And then it set compliance states for public water systems or 2027 to start monitoring for these contaminants, and then they'll be on the hook for treating the contaminants by 2029. And so if they're not treating to get the water under these levels starting in 2029, they would kind of be on the hook regulatory wise and have to take certain actions. So almost immediately after the rule was finalized last spring, we saw lawsuits being filed to challenge the rule.

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And what these lawsuits are really claiming is that EPA exceeded authority under the Safe Drinking Water Act 1.) they said EPA did not have the authority to regulate mixture. So that hazard index I just pointed out, the plaintiffs are saying that there's no basis for that in the Safe Drinking Water Act. They say all the acts says is set MCLs; there's nothing about a hazard index or mixture. So that's illegal for that other handful of chemicals besides PFOS and PFOA. They're arguing that there's not enough scientific basis to set those limits. And then finally, they're saying all of the standards have cost problems and compliance burdens on the public water systems just saying it's going to cost way too much money for them to be able to meet these levels. They're too low, everyone's going to be out of compliance. They need to change. Now this lawsuit has kind of been paused mostly since it went into effect.

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It isn't, in fact, we're not into anything being required because we're not in 2027 yet. But really it was getting paused to see what the Trump administration was going to do with the drinking water standard. So just last month, the Trump EPA announced what they're planning to do with the drinking water rule. And what they're planning to do really tracks what the arguments were in those lawsuits that I just covered. And so nothing has been officially put out by the EPA. They say that they're going to introduce a proposed rule in the fall with plans to finalize that in spring 2026. So at this point, we're still waiting to see a draft rule. This is just their announcement of their intent. But what they want to do is take away that handful of other standards. So just leave in PPOS and PFAS. Everything else is going to go away.

(12:24):

Compliance states moved out to 2031 and then they're trying to do a bunch of other outreach, especially to public water systems that they think are going to have trouble complying with the MCL. And so at least litigation wise and regulatory, the drinking water standard has really been the biggest hot topic issue. I'm now going to go through some other regulatory issues we've seen on the federal level, just to give you all kind of a background of what EPA has done already. So in April of last year as well, the EPA finalized a final rule under CERCLA. So CERCLA for those of you don't know is the Superfund law. It prohibits the release of hazardous waste and substances as well as dealing with the cleanup of those sites. And it creates this liability system where people who are responsible for releases of the hazardous waste at the sites are going to be on the hook monetarily for that cleanup.

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So the final rule list PFOS and PFAS, again as substances under their CERCLA, which means that they'll now be a part of the Superfund process in identifying sites and liability for people who are releasing into the environment. But importantly as well, along with the rule, they put out a CERCLA enforcement description policy that said on that liability side, they're only going to go after parties who significantly release PFAS into the environment. And specifically there's a couple parties that they're not going to try to look at because I'm going to talk about in a second. A big hot topic with PFAS of late has been the PFAS that is left over after wastewater treatment plants, treat water and create sewage sludge. And so EPA saying, wastewater treatment plants, you're not going to be liable under CERCLA for that sewage sludge. And then farmers actually often take that sewage sludge and apply this as fertilizer.

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So saying again that farmers aren't going to be liable under CERCLA to try to calm their fears about designating the PFAS chemicals under CERCLA. Biosolids has been a really hot topic I'd say in the last year. So that map down here in the left hand corner is just tracking legislation that has been introduced since January of this year in 2025. So states are really starting to look at the biosolids as something that needs to be regulated. There is a lot of concern about applying sewage sludge to agricultural fields and the impacts that that will have on crops.

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In January, 2025, EPA actually released a draft sewage sludge risk assessment for PFAS and PFOS. Again, public comment initially was open until April. They've extended that through August and the draft is pretty interesting. It focus is on what they call a family farm. So they're really looking at, let's think about people who are farmers who are eating all their food from their farm and that they're applying the sewage sludge right there on their property. It looks a little bit about at people who live close to sewage sludge disposal sites, but it's really focused on thinking about, okay, if farmers are there and they're eating these agricultural products, kind of what's their risk? It made a couple interesting findings. They say that PFOA contaminated products have a generally higher risk to the family farm than PFOS ones. Specifically, they looked at milk, water, beef and eggs and really finding that there was higher levels in

them while they said that PFAS contaminated products generally have lower levels and vary more with changes with environmental factors.

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And that fish and milk are really the only ones that are consistently exceeding the acceptable risk thresholds. So again, this is still out for comment. It's not finalized. We have really no idea how the Trump administration will take this dress risk assessment as it was a product of the Biden administration. But again, biosolids is something we're starting to get a lot more questions about at the Law Center and definitely something that we're keeping our eye on to see where they're going moving forward. Okay, so RCRA is the Resource Conservation and Recovery Act. It's really dealing with how we regulate hazardous waste as they move through the treatment, storage and disposal phase. So it's really tracking kind of how hazardous waste to move.

(18:00):

So in February, 2024, EPA proposed to list nine PFAS that's called the hazardous constituent under RCRA. And what that means is if these PFAS were listed, facilities that were going under corrective action under RCRA would have to consider them in doing their facility assignments as well as then maybe in their investigation and clean up after the fact. So again, looking at the entities who are treating, storing and disposing these wastes, again, that was February, 2024. We haven't heard anything from EPA about where that rule is standing. Then under the Clean Water Act just last fall, the EPA published the final water quality concentrations for 10 PFAS. And what they were really looking at were the risk of fish and other aquatic species of PFAS and their ability to live, grow, reproduce in the environment. When the EPA puts out water quality criteria under the Clean Water Act, they are not regulatory levels, they're not required, but what they're meant to be is for the state and the tribes to look at them as the states are developing their own Clean Water Act program and they're developing their own water quality standards.

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So they're just informational to help the states when they're thinking about these issues with fish.

(19:40):

And so there's a handful of these, I just have up here, the ones again for PFOS and PFAS that the EPA put out, but if it's something you're interested in definitely working in the fisheries or aquaculture side, definitely check them out if that's something that you're encountering in your work. And then finally at the end of April, the EPA gave us a little bit of insight into where they think they were going to go with the Trump administration. And I'll say that when they put out this press release, they repeatedly went back to the PFAS work that was done by the Trump administration. So not really necessarily talking about what was in play and in progress under the Biden administration saying, let's go back to this plan that we put in when we were in power the first time; but a couple of things that they did indicate was that they were going to develop a fluid limitation guidelines under the Clean Water Act for certain manufacturers and medical finishers.

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The Biden administration had actually put out their own affluent limitation guidelines, but they withdrew those in January. They're going to look to how RCRA can be better used to prevent releases from manufacturing. They want to add more PFAS to the toxic release inventory, which is required under the National Defense Authorization Act. That's looking at telling people when you're releasing to PFAS that you have to notify the EPA. Some PFAS are already listed. Yesterday when I checked it said 250, were already under there, but they're just planning to add more. And then as well as enforcing the Clean Water Act in particular to prevent future affluent releases into the environment. So again, most of what I just covered is what the Biden administration did. And so we're still kind of in this holding period, especially with all those draft rules that they put out under Biden to see where we're going from there. So with that, we're going to segue into state approaches. And so with our state research, we've really seen consistent

buckets of where states are working. And so looking at, again, MCLs with drinking water, health-based values for drinking water, hazardous substance designations, product manufacturing restrictions, as well as food consumption advisory. So with that, I'm going to pass it over to Amy and let her talk about what the research she's been doing in the southeast.

Amy Kraitchman ([23:05](#)):

Okay, great. Thank you. Hi, I'm Amy Kraitchman. I'm the law fellow here at the National Sea Grant Law Center. And like Cathy said, most of my work related to PFAS has been in the southeast. So I'm just going to talk about briefly what I've found, how their approaches differ from the Great Lakes, which we'll talk about later, and just kind of how states are approaching PFAS regulations. Next slide, please. Okay. So all my findings can actually be found on the website. I wrote this Southeast PFAS explainer. It's a little outdated now from the fall, but basically the goal to try to summarize what each state is doing and provide resources to find this material because from some conversations that we had with partners, it seemed like there's a lot of information out there, but no one quite knew where it was or realized the extent of research and documents that were being put out related to PFAS contamination and exposure. So the goal is to help find that material, help groups track and figure out what's going on in their state, and then hopefully make it easier to understand what's happening. I can share that link later as long as some other links in the chat. Next slide, please.

([24:24](#)):

So here's my comparative analysis. As Cathy mentioned, there were a few different types of PFAS routes that we are looking at. And what I kind of found in the Southeast is that it doesn't fall neatly into some charts that she has for the Great Lakes just because of the variety of actions taken. This includes pretty much everything that's in the explainer except for litigation that has happened in the state. And just about every state on this chart has some sort of litigation going on over PFAS, whether it's at the state level or lower level or municipality suing. Pretty much what I found though was that legislators in the Southeast are not as active or not as successful in passing PFAS legislation. So most of the guidance and most of the work comes from their state agencies and they carry a lot of the burden of working to identify where contamination is and doing outreach, and then also if they can actually address known contamination.

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And a lot of times that's coming without really any clear sorts of funding. Some states have actually, in their budgets, been able to pass some sort of funding to direct their agencies to do that work. But a lot of it seems to kind of come from the state agency initiatives or from work with the EPA. Pretty much the only successful bills have been appropriation bills for the most part. Some have done other work. I could see North Carolina was able to pass a bill, sorry, not Carolina, Georgia was able to actually pass the bill and ban Class B firefighting foam that contains PFAS. But it's kind of a mix about how successful it can be and just what's working. So a lot of it has come from appropriations and then also from appropriations to universities to help create these partnerships and create work with the agencies to do some of the testing or do some of the addressing of a known exposures that maybe the agency can't quite figure out how to do or doesn't have the capacity to do. I can answer questions about this graph later if there's any next slide please.

([26:37](#)):

So as I mentioned, one way that the states in the southeast are working to address PFAS is through partnerships with their universities. And a lot of this is coming from appropriation bills or directives that are occurring. So this is just three different types of partnerships that the Southeast have created. So in North Carolina, they are working with the North Carolina Policy Collaboratory, which is based at UNC Chapel Hill, but includes a lot of other universities in the state and they provide funding to do research and to do some sampling. For example, North Carolina State has done a lot of sampling on Gen X and drinking water sources in the Cape Fear River basin area, and to study PFAS in public water systems and

sample surface waters and just do monitoring and do monitoring outside of water and air and somewhat in soil. But mostly the focus has been on water. And a lot of that is because North Carolina knows where their PFAS pollution is coming from, and it's really in one region that they've been able to focus in on and address. And then also their partners are doing a buyback program for the firefighting foam containing PFAS and are doing research on the long-term effects of that.

(27:57):

Florida, it's a bit different, so they have a bit of a different history. Prior to 2021, there really wasn't much directive from their legislator of what to do. So we saw some work with the University of Florida Center for Environmental and Human Toxicology to work and do some of the research for the agency, and they developed some screening levels and target cleanup levels for PFOA and PFAS, and that was happening seemingly without any directive or funding. The agency seemed to be submitting questions and then has documents on their website implying that the researchers were just giving back the information to them to follow. And then in 2021, the state legislator created a fund that provided the U-F-P-A-S Contamination Material Treatment Pilot project, about \$1 million to actually start developing pathways to address PFAS and to identify where cleanup needs to happen. And that seems to be working with the same group of people in their labs and research, but it's more formalized process.

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And then lastly, in Texas, the state committee has included researchers from the Texas A&M Agri Life Research and the University of Texas to work with the regulators directly from the agencies on a committee, the Bureau of Economic Geology, oh no, sorry, that's who is the Groundwater Protection Committee. And so they're working side by side with the agencies to research PFAS monitor existing PFAS, and then provide recommendations to the state legislator of what to do to address PFAS. So that's just kind of a different way of doing it where they're not one's working on one thing and the other group's working on another, but they're working together in the same group. Next slide, please.

(29:55):

And then in my research, we kind of came across this MDL, which is a multi-district litigation, and that basically is a way that courts can take a lot of cases that are about the same thing across the country and combine them into one court to streamline the discovery and pretrial process. And so there's one created in South Carolina addressing AFFF of Class B firefighting foam containing PFAS. And what we found was that in 2018, they created this because of a lot of lawsuits that were coming up regarding the long-term health effects in firefighters and that military bases and areas surrounding those that had PFAS exposure. And we're seeing a lot of the effects of prolonged PFAS exposure. And so there's a few different types of cases that were coming into this MDL from across the country. There were some from water utilities who had known contamination that they could trace back to firefighting or to the military bases and had it in their drinking water and were able to identify that there were some from state attorney generals over the contamination of state resources related to that use.

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And then there is some from property owners who had known contamination and then personal injury, which were the firefighters and military personnel and communities around the area that had health effects from prolonged exposure and contamination of drinking water. All these cases came in. The judge has been working to try to process a lot of them and settle what he can. He's been focused on settling cases that relate to water utilities to try to get funding out to them, to hopefully start doing some of that testing that Cathy mentioned earlier and to start really addressing contamination of drinking water sources. But it's a long process. There's a lot going on. A lot of the cases are against the same big companies. And so there's a fear definitely that they might try to file bankruptcy and then no one can get any funding from it. So it's a work in progress. Not much has happened. I think only the first few cases are returning back to their home court, their home district court, and we haven't seen really seen what comes from it, but hopeful there's a lot of ways that people can get funding and people can start to address

contamination and exposure that is known in their area. But yeah, I also have a document related to this that explains it and breaks it down more that I can share in the chat after this. But that's it. Thank you.

Cathy Janasie ([32:42](#)):

Great. Thanks Amy. I'm glad you had to tackle that MDL because it is kind of a beast to tackle research wise. So let's see. Okay, so I'm just going to wrap up with what we found with our product that we've been tackling in the Great Lakes. And I think the really interesting thing about having me and Amy both look at different regions is to we're able to compare the two of them and see how they're different. And as we'll see, the Great Lakes have been much more active in passing legislation and regulations regarding PFAS. Minnesota has been very active, but it is also the state where 3M invented the first PFS contaminant. And so that could be maybe kind of the driver for why the Great Lakes have been so active.

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So we looked at very similar different pathways as we did in the southeast that Amy just covered. So when we're looking at AFFF firefighting foam, we found that every state in the Great Lakes region, besides Pennsylvania has some kind of regulatory provision related to firefighting foam. And then when we looked into comparing them, we saw that the bans weren't always necessarily consistent state to state. So just because every state has taken that action, the bans might look a little different state to state. So some states have banning all use no matter what. Then different provisions maybe for training and testing exercises, sorry, training, testing, and then as well as manufacturing sale and distribution bans. And then the states, again, the legislatures have ridden in, some of them have exceptions thinking about this is firefighting foam. There might be circumstances where they absolutely have to use it, but some of the states have said absolutely not in certain these kind of enumerate circumstances, you can't use this firefighting foam anymore.

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And then some of the states have also put into requirements when it's used that they have to notify the state. They started collection programs to start collecting the banned phones. That's been one of the questions we've gotten a couple times at the Law Center is what happens to this firefighting foam once it's banned and it can't be used as well as some additional programs including, I think it's Indiana, but one of the states is actually going to test blood levels of firefighters to see how much PFAS they actually have in their own bodies for being exposed both to the firefighting foam as well as the firefighting PPE as PFAS in it, because again, it has great qualities for protecting against fire.

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Okay, so then looking at surface water, as I mentioned before, we're in this back and forth on the federal level with fluent guidelines and Clean Water Act permits, but in the state for states have taken some kind of regulatory action regarding surface water, and they're all looking at those water quality standards that I talked about when we talked about that ambient levels for aquatic life. And so Michigan has water quality values in place. Minnesota has water quality standards in place. New York has guidance values, Wisconsin has water quality standards, and then Vermont is a little bit of an outlier. They released draft 2020 standards and then have never done anything with them, so they've never been finalized. So we've seen some action. The Great Lakes that surface water, certainly not as much as we've seen with firefighting foam or with fish consumption advisory.

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So what makes the Great Lakes maybe unique is that they have a Great Lakes Fish Consortium. And so they have been working on looking at PFAS in fish in the Great Lakes. And so in 2019, they released their best practice for PFAS in fish, and it was based on what the EPA had put out in its 2016 water health advisory previously. So they used the same calculations and standards that EPA did. And so most states have a representative on this fish consortium, and it's led to most states in the region issuing some kind of

fish advisory related to PFAS. It's a pretty active space in the Great Lakes to the point where it's very hard for us. There are so many; for us to go through and track them all action by action. I've had Amy look at what shows up as well.

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It just would be very tedious to go water body to go water body. It would take a lot of time, but we can say that they're happening and we're happy to always look at ones in particular if they're a question that someone has about them. Only Ohio and Vermont aren't issuing any advisories at this point. They're just sampling fish. They haven't put out any advisories. And then interestingly, both Michigan and Wisconsin have issued advisories related to deer meat. They've had several, both states have had outbreaks in the states related to deer that have been near contaminated sites. And so again, an interesting kind of activity for these states to be taking and drinking water. Five states have enacted their own maximum contaminant levels under their own state drinking water acts that pre-day EPA's 2024 standard. All of those standards were less stringent than what EPA finalized except for Michigan standards for PFNA.

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And then the other states who haven't taken MCLs also have health-based criteria and looking at drinking water to give guidance when drinking water might be above that health value, kind of what steps could be taken. These are the levels that we have in the Great Lakes. The big Xs I have on here are for the EPA, for the ones that they're proposing to take away. But you can see they're all over the board in kind of what levels they have chosen and they look very different than what EPA put out. And so that is what's driving some of the challenges to that EPA standards. As Amy mentioned, pretty much all of these states have some kind of active litigation related to drinking water, whether it's contamination, whether it's their own levels that they're setting. It's a huge space litigation wise. And so it's definitely something that we're tracking and keeping an eye on as this area starts to evolve. And we're seeing what the different states as well as the EPA is deciding what to do.

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So the Great Lakes, quite a few states also have taken actions related to groundwater. Most of them are being driven by wanting to protect drinking water sources. And some of them have been finalized. Some of them are still kind of draft and proposed. So Illinois has ground quality standards for six that are still in that proposed draft state. Other states have said, let's make the limits the same as drinking water and apply them to groundwater sources that are being used for drinking water. Again, health risk limits like we saw with drinking water, are going to be used under the Groundwater Protection Act in Minnesota. Again, water quality standards in Minnesota using those EPA MCLs there to develop their own water quality standards. So again, seeing this kind of correlation between what's being done on the drinking water side, moving that over into the groundwater space in the Great Lakes. And with that, that is everything we have planned to share with you all. We're happy to take questions. I will stop sharing my screen at this point so we can better see what's in the chat. But again, we're happy to answer anything that you guys might have questions on, and hopefully we didn't just overwhelm you with too much info.

(42:55):

Okay. No questions. We'll wrap up and thank you all for tuning in. Again, we'll be posting the webinar on our website. And again, thanks for being here.