This document contains edited and redacted transcripts from a series of engagement sessions held in April and May, 2026, on the topic of Soil with Low Concentrations of PFAS, along with input received at an EPA email address through May 29, 2026. (The email address is not open for further input at this time.) Each session was held virtually using the ZOOM for Government platform and announced in advance on EPA's website. Each session was recorded in order to accurately preserve the dialogue. Five of the six sessions' recordings were transcribed using a Microsoft Co-pilot associated software named Clipchamp. The sixth session's recording was transcribed using the transcription function within the ZOOM platform.

Comparing the audio files with transcribed text revealed occasional errors in transcription with both software tools used. Because those errors might affect interpretation and subsequent use of the information, an EPA employee compared the audio with the transcriptions and corrected errors. Examples of errors corrected are:

1) Audio: "deep well injection"; transcript: "deep oil injection"
2) Audio: "CERCLA"; transcript: "circular"
3) Audio, based on context: "four"; transcript: "for"

et cetera.

The EPA employee also corrected transcripts where different people spoke, but the transcript represented only one person's speech. The transcript also was corrected to end sentences when there was a significant pause and the speaker's thought appeared to be complete, or to join sentence fragments that the transcription software rendered as separate sentences. The transcript also was corrected to remove speech filler sounds such as 'uh,' 'um,' 'right,' 'like,' 'you know,' and repeated words; similarly, at the beginning and in the middle of sentences when speakers rephrased their point the EPA employee removed the excess words. The transcript also was edited to omit many or most of the time markers printed during a speaker's remarks.

Speakers' identities are limited to identification as either an "EPA Speaker," or as an "External Participant" (external to EPA). Designations are numbered sequentially in order of appearance in the recordings: first spoken words, or referred to by other speakers, and secondly, contribution to the chat feature. Speaker and participant organizational affiliations mentioned in the recording are preserved intact, without change. Mention of specific companies, products or services does not imply U.S. government endorsement.

Certain Zoom session participants and email senders included personal information, and in one case included marketing materials for a private company's product/service. This information has been redacted by replacing redacted text with repeated Xs and highlighting

the result in black, as shown here: [redacted]. The marketing information was passed on to EPA staff working on guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances.

Contents

Edited Transcript: Engagement Session for **States and Territories:** Soil with Low Concentrations of PFAS

This is an edited version of the audio1642363140.m4a file generated from the Engagement Session for States and Territories: Soil with Low Concentrations of PFAS held via ZOOM April 27, 2026 from 2:00 PM to approximately 3:20 PM Eastern Daylight Time. Recording began after the introductory remarks and logistical notes, during the first non-EPA participant's comments:

[BEGIN EDITED TRANSCRIPT OF ZOOM RECORDED SESSION]

0:00 [External participant 1]
...varied slightly from one another, and standard deviations were running about the same as

the mean. So in Vermont, our rule allows us to take background into account, both anthropomorphic and naturally occurring. But the rule doesn't really define exactly how you determine background, which is certainly a weakness in our rule in my opinion.
I have interpreted that to mean the mean +2 standard deviations, which would mean that for PFOS it's around 3, we have to do the exact calculation and for PFOA it would be about 1.5.
And you are allowed to do site specific background if you think that your site has been contaminated from some other atmospheric deposition, that's more random or if you're in an urban area where you think there might be more sources. So we would take a look at that; there is a process for how you do that.

So I'd love to hear from some of the other states who did that as well. And I think talking about background also leads you to talking about when you have atmospheric deposition, what do you do in those areas where it's a site specific atmospheric deposition. I know we're supposed to be staying on background, but certainly applies to that. And our goal, and I've heard from several other states, their goals also is to try and keep those soils in the area where they were generated so that we don't impact any other areas outside the areas that have already been impacted.

The only other issue about background that I've seen is I'm not sure if you had a background concentration, you might still have soils that are risk to groundwater and we would have to try and figure out how to deal with that.

So I've done my 2 minutes and I see [External Participant 2] wants to speak, so I will give up the speaker.

1:56 [EPA Speaker 1]
Thank you, [External Participant 1]. And yes, the next hand I see is [External Participant 2]. Please go ahead.

2:03 [External Participant 2]

Hey, thank you very much. Yeah, [External Participant 2] from the New York State DEC. We also completed a rural soil background study last year. As [External Participant 1] said, we had very similar results. Our 95th percentile level was 3.0 for PFOS, 1.5 for PFOA and we had PFOS detected in 98% of the samples statewide. So it was just everywhere.

As [External Participant 1] said, one of the real challenges is when you look at the Koc values that have been empirically derived for PFOA and PFOS, they vary widely. If you use the lowest Koc values, your calculated protection of groundwater numbers will be much lower than your background 95th percentile. And it seems like every state has addressed that challenge differently. New Jersey just said, hey, we're going to require a site specific

background. Other states have said wow, because that number is lower than background, we're not going to use background. New York State is planning on using the background value for our soil cleanup objectives, but we have to work on how to explain that to the general public to say, yes, we're going to set a cleanup standard that's higher than the protection of groundwater number would be if we could use that calculation. So. The last thing I wanted to say is we haven't seen a background groundwater contamination pattern in rural areas, but in urban areas we certainly do.
We've also looked at background levels of soil in urban areas and it's almost identical to our rural background soil. So that urban background groundwater contamination level is not coming from soil. It might be coming from contaminated sites in the urban areas.

It might be coming from wastewater or stormwater discharges. But groundwater contamination is definitely higher in urban areas and that's one of our other challenges, just figure that out. Thanks.

4:17 [EPA Speaker 1]
Thank you. Are there other participants who would like to say anything on this issue of background?

4:30 [External Participant 3]
Hi, this is [External Participant 3] from New Jersey DEP. I couldn't figure out how to raise my hand, so I apologize for just speaking in. But yeah, I just wanted to speak to the soil survey that New Jersey did. We're not calling the levels that we found background.
We were looking to assess what the PFAS concentrations in surficial soils would be in areas we didn't expect to find discharges. The good news that we found in this survey was although we did have detections pretty much everywhere we looked, primarily your carboxylic acids and PFOS, the good news from our perspective is detections were below our soil remediation standards that we have for PFOA, PFNA, PFOS as well as hexafluoropropyleneoxide dimer acid or commonly known as GenX chemicals.
As was mentioned, we do have a process for calculating site specific soil remediation standards for the migration to groundwater exposure pathway. The evaluation of that in this study also revealed primarily it was below the calculated site specific standards for almost all of contaminants. We did have a couple of exceedances for PFOA, but other than that, primarily it was below our standards.

5:59 [EPA Speaker 1]
Great. Thank you, [External Participant 3].

6:01 [External Participant 3]
No problem.

6:11 [EPA Speaker 1]
And I know we've received some comments as well from Hawaii. They would like to know more about how these low concentrations are determined, which is definitely what we are here to find out from all of you as well. So if anybody wants to speak more on how their state has approached determining background levels, please raise your hand. We also are interested in understanding from your perspectives what led to the development of either regulations or guidance on PFOA and PFOS and soils in your state, if anybody would like to comment on that. Yeah, [External Participant 1].

7:35 [External Participant 1]
So around 2017/2018 we had a large atmospheric deposition site and the PRP was arguing that much of what we were seeing in soils around the site was background or similar to background, which led us after a public meeting to commit to doing a background study throughout the state. We did take 69 samples. Fewer than New York, but they're much larger state but happy to report we had very similar results. So I think at least in the Northeast that that decision is pretty consistent from state to state unless you have a site specific source. So that's what led us to doing it and we worked with a university who had a GC MS MS and did a modified method 537. And as I said, the results seem to have come out pretty good. They did have some elevated detection limits close to a part per billion on some of the very short chain or some of the very long chain carboxylates and sulfonates. And the reason for that was we were really focusing on those C7 C8s, which were the contaminants we were seeing at the site that drove us to do the work. Others probably have better data on some of those short chain and long chain PFAS than we have. Thank you.

9:04 [EPA Speaker 1]
Great, thank you. And I know there are states that have soil cleanup or soil screening levels that at least maybe not to our knowledge or what we could find had posted or published any information on their state background levels. Are there any of those states that maybe want to comment on how they approach that, setting the clean up or screening levels, maybe whether there was or wasn't any discussion or thought about what background levels might be. Maybe this is more I don't know whether that's more the non-northeastern states or not.

10:06 [External Participant 4]
Can you hear me?

10:08 [EPA Speaker 1]
Yes, [External Participant 4].

10:10 [External Participant 4]

I was having some audio issues earlier and also unfortunately it might be because I'm not as familiar with Zoom, but also having some issues with the raise hand button. But anyways, this is [External Participant 4]. I'm a program manager for hazardous waste with the state of New Mexico. You know, just really a brief discussion to report. We tend to treat a lot of our sites as you know, ensuring that we're getting site specific data. So a lot of times we would have a known source and we do have some state specific standards that we are working presently to try and get some of those updated to be a little bit more current that are basically based on some of the health risks and exposures. I'm not sure how much has been paid to background, although I know that we haven't had the opportunity yet to perform a large background study as of yet, but have had some limited experience with just working through with a little bit of essentially an environmental site assessment with an entity to look at whether or not there was any PFAS impact on our different regulated soil screening levels. And it is essentially just ensuring that they were not above those levels and in terms of when we look at a background concentration, we want to make sure that we're getting people out of the urban environment if we can. Because we do have some areas that might not be as easily contaminated by airborne deposition. But it's hard to find. Not really much else to say on that matter, I don't think. We haven't run into it as much except for some cases where we have known sources that such as with AFFF and that kind of thing.

12:06 [EPA Speaker 1]
Great. Thank you, [External Participant 4]. And [External Participant 3], I think I had seen you come off mute before as well.

12:14 [External Participant 3]
Thank you. Yeah, I just wanted to chime in. From New Jersey's perspective, we do have several major sources of PFAS in the state, industrial manufacturers. Another thing that drives any standards that we set is 1, what is the occurrence of that contaminant in New Jersey in the various media and 2, is there toxicity information available. So from New Jersey's perspective, we did have occurrence data in various media for 4 PFAS compounds as well as toxicity information. So that is what drove us to develop standards for PFNA, PFOA, PFOS and Gen X chemicals. We continue to evaluate our data as well as toxicity information and we'll add additional standards along the way based on those two main points. As far as background goes, again, we're not terming the soil survey we did as background, but we were very pleased to find that our results were below our current standards. So at this point in time New Jersey's not looking to establish background values for PFAS.

13:31 [EPA Speaker 1]
All right. Thank you.

13:40 [External Participant 5] I can jump in briefly from Maine's standpoint just to add that we also have soil background guidance numbers for the compounds that there are tox information available for. We haven't as yet had to put those to the test, I would say very often. And our background study was similar to the other Northeastern states that we were looking for areas where we didn't have any knowledge of sources, but they were in medians and right of ways and things like parks and things like that. So it wasn't in the northwestern part of the state woods. And the only thing I throw out is it really depends whatever your objective is in terms of how you're going to use the data makes a big difference in terms of whatever statistic you choose. And yeah, we found like a lot of other environmental data, our values are driven by a very small number of higher and relatively higher end detections. And so if you're using a UTL or UPL that's what your value is going to be is those high end detections are going to drive that as opposed to a mean that you might use to look at a decision unit scenario that's going to end up much lower.

15:11 [EPA Speaker 1]
Great, thank you, [External Participant 5]. And again, any other thoughts or comments that you might have, whether it's on background or what motivated your state to set up those develop those guidances or regulations on PFOA PFOS. The other part of it that we would love to hear more about is what led more to the developing of either soil screening or soil cleanup levels. What the decisions were ongoing in either of those directions. And then in addition to putting information in the chat, if there are longer answers or longer comments that you might have, we have set up an e-mail box for these sessions as well. And we'll put that in the chat and have that on screen at the end of our session today. But you can also provide us with additional comments or details there. So any thoughts on screening versus cleanup levels, pros and cons or what led to the development of one versus the other in your state?

16:52 [EPA Speaker 2]
[EPA Speaker 1], this is [EPA Speaker 2]. Just wanted to do a time check. We have 5 more minutes left for this topic.

16:58 [EPA Speaker 1]
Great, thank you, [EPA Speaker 2].

17:01 [External Participant 4]

This is [External Participant 4] with New Mexico. Just reiterating and kind of agreeing with a lot of other folks that our process in New Mexico, if I didn't mention earlier was we definitely perform a risk based analysis on the chemicals. And we try to with a lot of our regulatory actions make sure that we're treating PFAS and other emerging contaminants equally, and you know also making sure we're not down prioritizing any others that might be present.

17:30 [EPA Speaker 1]
Great, thank you, [External Participant 4]. And [External Participant 6], you have your hand raised.

17:38 [External Participant 6]
Hi, yes, it's [External Participant 6] from Connecticut. So a fellow Northeasterner with Vermont and Maine and the others. We are in the middle of conducting a background study in Connecticut with United States Geological Survey, USGS. So I don't have much to say in terms of what our results were or how we intend to use that data at this point in time.

But I just want to speak to the fact we're obviously a small state relative to the others in the nation. And our study, we have 100 sites. So we're just looking at shallow soil concentrations. It's costing us $1,000,000. So I just wanted to kind of make that point that these studies are not inexpensive and it's a significant undertaking for the states to carry them out.

18:19 [EPA Speaker 1]
Right. Thank you, [External Participant 6] and [External Participant 7], you're next.

18:24 [External Participant 7]
Hi. Yeah, [External Participant 7], from Rhode Island. I can piggyback a little bit off of what [External Participant 6] just spoke on. The reason why we did a background soil study in 2022/23 and we have been waiting to publish our data on all of that to coincide with some regulation changes to have specific soil numbers. And we're basing those soil numbers off of leachability and we made it to the groundwater as that's the biggest driver we found in Rhode Island in terms of sites for PFAS. But the reason that we did it at that time frame was because we did have the money available to do so. And so we decided to use that money as quickly as possible to get that data.

19:22 [EPA Speaker 1]
Great, thank you. All right, we just have a couple of minutes left before we move to our next topic. Are there any other last comments I see in the chat? People are sharing resources, which is great.

Yes. [External Participant 8].

19:48 [External Participant 8]
Oh, hi, yeah, I'm with the Colorado Department of Public Health and Environment. We don't set our own soil screening levels. We defer to EPA RSLs and that's brought up a number of issues at some of our sites where they're looking to do some characterization, specifically the levels for PFOS and PFOA are typically a lot lower than the other PFAS and tend to drive these. But also a lot of our results that we're finding at these sites outside of

known release areas more often than not exceed those and causes a lot of concern for sort of our regulated entities and us. And it's what spurred us to where we're also similar to New Mexico are exploring the possibility of developing our own background values. It is just sort of a hold up for a lot of our sites. We have guidance on site specific backgrounds, but it can be onerous. And so some of our entities don't want to get involved in that. And so we've decided that it may need to take it upon ourselves. We have a state guidance on naturally occurring arsenic in background. We tend to have high arsenic in Colorado. And so we're hoping to apply a similar framework to anthropogenic PFAS. But we have some data from local universities that have conducted some soil sampling that may suggest that PFAS deposition in higher elevation environments may be slightly different than some of the lower elevation environments. So that's why out West we were considering this over maybe using data from other states.

21:37 [EPA Speaker 1]
Great, thank you. That's very interesting. All right, any last thoughts on this topic, please add them to the chat or again, use the e-mail box [EPA Speaker 3] shared in the chat and that will be open through the end of May, May 29th. We'll collect comments there. All right, well, let's move on to topic #2. This is examples of construction or redevelopment issues that you know of or have run into and any potential solutions. So for this second topic, we really would like to hear from you about any specific practices that are required to manage soils containing low concentrations of PFAS. And if there are no requirements, perhaps you have some examples of issues that have come up in this context that you can share and perhaps any solutions as well. I think [External Participant 8], you somewhat alluded to some of these issues and for this topic.

23:05 [External Participant 8]
Yeah, I guess I can share an example from how we've been doing this in Colorado is specifically at some of our airports where they have a lot of you know you find a lot of PFAS in soils and frequently above industrial RSLs, especially for PFOA. We've been managing these through our beneficial use program, which does a project specific approach. So it has to be a case by case approval. But in a lot of these cases where we do have to set a limit at which soils are no longer acceptable to keep on site. And so we've been trying to get our entities to use, maybe, in these cases, the most contaminated soils that we're allowing to be left on site will be put underneath a new taxiway or runway. And a lot of times these are probably more robust caps than a landfill will have. You know, it's like 2 feet of concrete and two feet of gravel and some impermeable membranes. And so we've been using a utility worker scenario. That's where we've been driving people. It's sort of the we allow for the use of that guidance. But yeah, we see this as a large issue. We have some airports that also didn't manage their own firefighting foams. So the contamination on their site is purely

is they are I guess a passive receiver in that they never bought or used the foams. They were used by others who may have ran those response activities. But yeah, we're doing a lot through our beneficial use program, which allows sort of site specific adjustments to screening levels.

24:41 [EPA Speaker 1]
Great, Thank you, [External Participant 8]. Other states, territories who might want to comment on that?

24:52 [External Participant 4]

Sure. Just one thing I was partially alluding to before this is more of just sharing the experience. It wasn't really necessarily very severe. And we also have other things going on which I'm not necessarily going to go to too much depth about concerning AFFF. But in terms of an industry that we had at least one site that this was somewhat of a concern that I alluded to earlier is electroplating. And so specifically, we did have a site that had some issues in general and was not doing well at fulfilling their responsibilities as a large quantity generator and ended up, as it sometimes occurs, the business owner had to get out of the business and pass on the property to somebody who needed to do some remediation on it. So that was just a fun experience as we sometimes get and especially looking at how to make sure that we were evaluating all the constituents of concern, not just PFAS, but one of these tricky ones was making sure they didn't get anything under the floor.

26:16 [EPA Speaker 1]
Great. Thank you, [External Participant 4]. Yes, [External Participant 7].

26:28 [External Participant 7]

Rhode Island has a lot of textile mills and one thing we found is that a few of them that have gone under have had interest in redevelopment. But the lagoons that are associated with the wastewater for these textile mills are so highly contaminated with PFAS that it's quite difficult for any remediation to happen because of the large price tag that comes with remediating those lagoons. And then they just wouldn't have any funding left to actually redevelop these buildings. So that's one thing that we have found an issue and we don't have a solution for at the moment.

27:16 [EPA Speaker 1]
Got it. And so then is it, it's both obviously the surface wastewater, lagoons in addition to soil contamination that they're finding on these sites?

27:31 [External Participant 7]

Yeah, one in particular has it everywhere. So it is soil also trying to find locations to put in their stormwater runoff basins and all that outside of PFAS contaminated soil, things like that. So, yeah, it's a combination of all media on these sites.

27:56 [EPA Speaker 1]

and then that's just halted the redevelopment discussion?

28:03 [External Participant 7]

Yes, definitely. We do have one site. It has a lot of other issues that we are currently trying to list on the NPL. So we're hoping that that can be a solution to help facilitate redevelopment and something to happen in the future. But as for other locations that could potentially have any sort of redevelopment, they don't have that option.

28:29 [EPA Speaker 1]
Got it. Thank you. Yes, [External Participant 9].

28:38 [External Participant 9]
Yeah. Hey, good morning, [EPA Speaker 1]. Good morning, everyone. My name is [External Participant 9] with the Alaska Department of Environmental Conservation. And we have a lot of PFAS sites in the state of Alaska. We have a lot of Part 139 certified airports. We have a lot of drinking water contamination because a lot of people in Alaska live around the airports and they drink the groundwater. We have promulgated soil migration to groundwater clean up levels for PFOS and PFOA that we use as sort of a bright line. For construction projects we allow soil that is contaminated above that level to be excavated then placed back at the approximate location where it came from. So for utility installations is something that you can do for that. For larger projects, we have seen some projects be sort of redesigned just to leave the contaminated soil in place. We still have a lot of really peaty organic soils. There's no reuse. It's either you excavate it and get rid of it or you work around it. And so there have been some pretty big facilities that have just been re-engineered entirely just to leave the PFAS in place. If it's above our migration to groundwater cleanup level and is considered an excess waste, then disposal is the only option. We do allow for some stockpiling, but that's not really a permanent solution. There are two permitted soil treatment facilities in the state of Alaska that can treat PFAS soil, but there's no real landfill option here. People do ship soil out of state to landfills down in Oregon or Washington, but that's an expensive proposition to ship soil to another landfill. So. That is sort of how we are managing things here in Alaska right now. We do have a lot of big projects, a lot of airport projects with a lot of PFAS. Again, we see this all over the place in some of the larger airports.

30:52 [EPA Speaker 1]
Great, thank you, [External Participant 9]. It sounds like there are definitely states where there are projects where developers could keep soils containing these types of either low concentrations or perhaps others in place. Maybe there are other states where that's not allowed. So if folks have some other examples, under what circumstances or conditions developers are or are not allowed to keep PFAS containing soils in place, we'd love to hear about that. We only have just a few minutes left on this topic before we move to our next topic. So if anyone has any last thoughts, please raise your hand or again put them in the chat.

31:57 [EPA Speaker 1]
I see a comment from South Carolina that there's similar issues to Rhode Island with textile mills. Any other? Yes. [External Participant 10].

32:24 [External Participant 10]
Yeah. No, I don't necessarily have a different example, but I've been engaged with the PFAS topic in construction industry or road construction industry for about 6 years. And I think what we're seeing is probably one of the largest earth movers in the state of Virginia. Invariably with our projects in both rural and urban areas that management of these very, very low level concentrations, some of the samples we've collected, again consistent with what the previous topic was in the 90% range of detections for PFOS at very, very low levels. So even below some of the background, upper limits that other states have been, put forward. So I think having a reasonable approach moving forward with a framework of how to manage these because invariably, if you're going to be able to detect it, we need to be able to management. For the moment, we've been able to manage it within our existing right of way through some of the strategies that have been mentioned with regards to either redesign or just placement with finding a place for it within existing right of way. But, invariably we're going to hit a project where that's not available and trying to manage 100 part per trillion PFOS is, in copious, carnage [*ed. note: probably was 'quantity'*] is going to be a big challenge. So just appreciate what you're doing to try to push this issue forward, at least for the road construction industry.

34:08 [EPA Speaker 1]
Great, thank you, [External Participant 10]. OK, Oh, I think wait, I was too early. We have more time. We have like 8 more minutes actually of this topic. I think I got my times confused. So please feel free to share more on this on this topic. Any other examples of it sounds like redesign is something that multiple projects or industries or states are using to keep soils within the project site. If you have other examples or other thoughts on this topic on construction redevelopment, we'd love to hear from you.

35:07 [External Participant 4]
So this is [External Participant 4] with New Mexico. Just one other thing that kind of came up because it was mentioned by Alaska about the dearth of different disposal options for soil. In New Mexico, normal low level PFAS or even PFAS above soil screening levels would not be considered a hazardous waste at least by the regulations unless it was contaminated by AFFF due to our state specific regulations. But regardless of that, I am aware that we do have a facility that's wanting to get a TSDF permit to basically take some of this soil. They already take some oil and gas material that's exempt and do what's called land farming for it. So they have some of those facilities, they have been trying to get a hazardous waste facility permit. And I'm aware that they're wanting to take this PFAS material and obviously they don't currently have a RCRA permit, but they're wanting to take this material in general. And we also see that at least for the high concentration stuff, there's some technology that's out there for incineration, but that's obviously more appropriate for the high concentration stuff.

36:29 [EPA Speaker 1]
And [External Participant 4], I'm not sure I've heard the term land farming before in this context. Can you just elaborate a little bit to educate?

36:37 [External Participant 4]
It's a very colloquial term and I almost feel that a little bit sheepish for having used it because it's very non-technical. But essentially it's a type of treatment process where they leave especially petroleum contaminated soil exposed, but it contained and confined to degrade over time and to be treated over time.

37:01 [EPA Speaker 1]
Got it, Great, thank you. Other thoughts from our participants? Yes, [External Participant 2].

37:24 [External Participant 2]
Yeah, I just wanted to mention that even though the PFAS contaminated soil is not regulated as a hazardous waste, a number of our landfills refused to accept PFAS contaminated soil due to the potential liability. So a lot of our soil has been sent out of state to hazardous waste landfills in other states. We're starting to see some solid waste landfills taking some low levels contaminated material, but if you don't set criteria, a lot of landfills will assume the criteria is 0. Disposal of those soils has been a challenge and has been a real cost challenge especially.

38:13 [EPA Speaker 1]
Yeah, great. And our next, actually our next two topics will be first more about landfills and then talking about liability and insurance as well. So those definitely are on our minds as

well. And I see comments about trying to define a general range of low concentrations, which unfortunately we don't have a quantitative range. And so this is why we're doing these engagement sessions as well, to really hear from you all how you are defining that and what you are using in terms of these or what you're thinking about in terms of these terms. And whether you are looking at background to potentially define what you would consider as a low concentration soil or whether you're using things like the screening or cleanup levels or anything like that. So we'd love to hear any and all of that feedback from you all. I do see that we're getting a little bit more into the landfill issues. So maybe we should move to Topic 3 a little early since that seems to be a bit of our segue naturally. So this topic is about landfill disposal of soils with low concentrations of PFAS and so, here, we we'd love to hear about what options there are in your state or territory for the disposal of soils containing low concentrations of PFAS. We've heard from a few of you that some of the landfills are not accepting that or being sent to hazardous waste landfills. Any other states or territories who would like to add to that discussion? Yeah. [External Participant 11].

40:51 [External Participant 11]

Yeah, I'm in Oregon and I work mostly with landfills and we don't yet have rules, although most of the subtitle D landfills are very cautious about any PFAS in any regulated waste or special wastes, including clean up soils. And we do have one subtitle D landfill who has open arms for anyone willing to pay their fees. But it's hard because we as regulators, we haven't been prepared to give them numbers for Subtitle D landfills, and there's no hazardous waste threshold. So they seem to be very concerned and trying to minimize their risk, which I can't really blame them, even though I mean, it would be nice to say below X is going to be negligible compared to the amount in consumer products. But I just don't think we can say that yet. I don't feel able to say that yet.

42:11 [EPA Speaker 1]
All right, thank you. Thanks, [External Participant 11]. Yes, [External Participant 2], you have.

42:18 [External Participant 2]
Yeah, I'll mention New York has tested the landfill leachate at our landfills and we're seeing pretty high levels that triggered need to regulate treatment for the landfill leachate which was originally just going to POTWs which weren't removing the PFAS. And so there was some discussion about allowing soil that would not further degrade the leachate. So anything that wouldn't leach higher than what the leachate is already should be acceptable to landfill. But I think we're going with treatment of the leachate instead to manage that risk. Yeah, that's it.

43:11 [EPA Speaker 1]
And [External Participant 2], was there any sense of what, where the source of PFAS was coming from? Was it household products or some other sources?

43:27 [External Participant 2]
Obviously we can't tell for sure, but it's all landfills. So it isn't just industrial landfills. So it's probably you know that it's the consumer products is contributing to that. But there's certainly a potential for industrial waste to be going into a municipal solid waste landfill. So no real distinction there.

43:51 [EPA Speaker 1]
Yeah, yeah. And I'm seeing in the, sorry,

43:57 [External Participant 4]

Yeah, I'm sorry. For some reason, I don't seem to have the raise hand button or at least very accessible to me. But I just wanted to let you know as well, [External Participant 2], that in New Mexico, I know they were watching a lot of that from our end as well too, with landfill leachates. I don't have any of my colleagues from the Solid Waste Resource Recovery Bureau on, I don't think with me, but I know that they are looking at landfill leachate in the state of New Mexico and whether or not we need to have regulatory standards for that.

One other thing that we've done in New Mexico is we'd have some material that was put into statutes where it does some PFAS labeling and some PFAS consumer product banning as well too. So I think that's one of the major avenues that our state's taking on that to try and reduce the impact to landfills. But also with that I'm aware that they're also looking at the amount of PFAS in leachate.

44:58 [EPA Speaker 1]
Interesting. Thanks, [External Participant 4]. And I'm seeing in the chat with North Carolina and South Carolina saying that landfills are hesitant to accept PFAS impacted soils and even from sites that don't have a known PFAS source. A lot of the soils that we're discussing today. And perhaps there are others out there who might be able to speak to some of the reasons behind or conditions either for acceptance or for denying some of the PFAS contaminated soils. I think we've heard liability concerns, obviously the leachate to groundwater, those kinds of issues. Are there other states or territories who might want to comment on that? And for landfills, obviously there just are so many potential issues surrounding acceptance of these kinds of soils. So we'd also be interested in hearing your thoughts just on landfill capacity given that these are such low levels in high quantities of soils or whether you've heard anything about just issues about soils containing precursors that would degrade to PFOS and PFOA. Any of those examples are of interest? Yeah, [External Participant 4].

47:10 [External Participant 4]

No, I'm sorry. I just wanting to mention that from my perspective, it seems like it's very variable and you have the gamut between facilities that are very cognizant of the issues and might be very hesitant to facilities that maybe do not have a lot of resources that might be more prone to having some stuff being accepted that they normally wouldn't want or wouldn't normally be realizing that they're accepting. And others that maybe they might be better situated and might be trying to position themselves in the market to take on that responsibility. So there's a lot of different diversity in the market I think right now from what I've seen.

48:01 [EPA Speaker 1]
Great, thank you, [External Participant 4]. Yeah. And I don't know, maybe there are others out there who could comment on any management approaches that some of these landfills may be using that are accepting these types of soils, whether it's management or some sort of treatment or in situ treatment or anything like that of these soils. Yes, [External Participant 11].

48:49 [External Participant 11]

Yeah, I guess I would just say in Oregon I'm aware of one landfill doing foam fractionation on their leachate and that was an agreement between them and the POTW as part of their pre-treatment requirements. But as far as I can tell that's the only active PFAS management from landfills we have so far and the state has not yet pushed the issue.

49:27 [EPA Speaker 1]

And that just came from the POTW or how did that?

49:33 [External Participant 11]
Yeah, it's one of the larger, more forward thinking POTWS in the state, and they started trying to figure out where all the PFAS in their wastewater was coming from and they also work with a number of chip manufacturers and they had several large industrial supply sources.

50:09 [EPA Speaker 1]
Great, thank you. And I know earlier some of you had mentioned the beneficial use. We know obviously landfills use soils for daily or final cover material. Be interested in hearing your thoughts or experiences about any consequences of using these soils containing these low concentrations of PFOA and PFOS as that kind of material in landfills. Whether you've heard that's a concern versus just accepting the material, whether they're making any distinctions of that sort. And I see a comment in the chat about subtitle D facilities deciding to accept PFAS impacted waste based on whether or not they think accepting that

waste will result in an increase in their existing leachate concentrations. Maybe other states or territories have similar experiences. All right, let's move. Oh, yes, [External Participant 12].

52:14 [External Participant 12]
Yes. Hi, can you hear me?

52:16 [EPA Speaker 1]
Yes, I can.

52:17 [External Participant 12]

Awesome. Great. So just quickly on the reuse of soils for intermediate cover or final cover, generally when our landfills accept contaminated materials soil, its use is for daily cover with the requirement that it not be during a rain event and it's kind of handled with a special waste provision. Those are quotes special waste. So we haven't actually broached the subject directly of PFAS contaminated daily cover. But I would think that if the landfill is going to accept it that basically they would need to make sure that it is not exposed to rainfall and they would not want to take on the liability of surface water impact and runoff. Or obviously impact to their sedimentation ponds. Probably haven't even investigated the sedimentation ponds - this sediment that's already in there - for whatever historic impact PFAS may have had, with regular runoff. So anyway, I think that there's something there that might be reasonable, but we're just at the very, very beginning of this and need to figure it out and get our arms around it like we do with any of the special waste. Any of the contaminated materials where they take it in, they handle it daily and then they make sure that it's covered before any impact by rainfall. And I would also think worker health and safety and all the other issues that may pop up with contaminated soil. So anyway, just something to think about. But definitely not final cover, definitely not final cover and definitely not intermediate cover. It's going to be sitting out there exposed for up to six months. So we would expect intermediate cover to be receiving rainfall. And I'm kind of curious about leachability numbers and how we get to really good data on what is the leachability analysis that we want to see? What's the good method to look at all this information and say this concentration in low level contaminated soil does leach and cause an impact or doesn't, once we get that answer or we get a number, I think we can help guide reuse and potential disposal options.

54:59 [EPA Speaker 1]
Great, thank you, [External Participant 12]. Those are great comments and that's a great lead in as well to our final topic of today, which pertains to liability and insurance. And here we are interested in any specific examples that you could share about how liability concerns may be impacting redevelopment in your state or territory?

55:46 [External Participant 4]
This is [External Participant 4] with New Mexico. Just mentioning that in general for us because this is such still an emerging field and because there's so much of a wait and see approach in some of the people that I talked to about this, between different states that having at least the basis of a consistent program is pretty beneficial and a lot of people just looking for more regulatory certainty.

56:22 [EPA Speaker 1]
Great. Thank you, [External Participant 4]. And maybe going along with the liability concerns, we're also interested in any examples in your state or territory about insurers concerns regarding low concentrations of PFAS. Any examples that you've heard about that whether in redevelopment or for landfills, would be interested in hearing your thoughts on that. Perhaps less of a popular topic. Or any additional thoughts on how EPA can help reduce uncertainty and facilitate safe development on sites where low concentrations of PFAS are present in soil. We've heard about regulatory certainty, we've heard about background methods, leachability methods, data. There's some examples in the chat Maine requiring leachate testing and landfills evaluating leachate treatment. Thank you [External Participant 5] for that link. Questions about soil monitoring surveys and testing. Any other comments or thoughts that you might have? Anything that has come to mind from the discussions? Yes. [External Participant 13].

59:22 [External Participant 13]
Sure. So my name is [External Participant 13]. I'm a project manager with the Texas Commission on Environmental Quality. And one of the issues of concern and that I've seen a little bit is that when a site is doing a Phase I/Phase II environmental site assessment, they may find low amounts of PFAS in groundwater, but they did not detect PFAS in soil above soil leachate values. So on initial inspection, it does not seem that the PFAS contamination that's in groundwater came from the site as well as when you look at the historic use of the site through the Phase I environmental site assessment, there's not a clear indication that the site had used PFAS containing materials. So at that point it's hard from the regulatory perspective to give no further action for the site from an environmental standpoint because the groundwater is contaminated, but at the same time, from a liability standpoint, it doesn't appear that the site caused or contributed to the groundwater contamination. So I think further guidance from the EPA would be useful for circumstances like that. Another state alluded to it earlier, but from a soil standpoint where it does not appear the site caused or contributed to the contamination, but there's contamination in place, that's a risk to human health or the environment. And so in our state, we do have a certificate program called the Innocent Owner Operator program, where a site that did not cause or contribute to the contamination can basically receive, for lack of better words, a

release of liability. But at the same time that doesn't address the contamination that's present that might be a risk to human health or the environment. So I think there should be further discussions on what do we do from a risk standpoint at that point if the property owner is not liable and the state can't clean it up, but there's contamination of concern. I don't know if any other states have been having this issue or discussion, but I think that's a really difficult issue we need to work through.

1:01:50 [EPA Speaker 1]
Great. Thank you, [External Participant 13]. Yeah. Are there other states or territories that want to comment on that?

1:02:00 [External Participant 3]
[External Participant 3] here from New Jersey DEP. As more data is coming in on sites, we are seeing scenarios, even scenarios where we expect that there is a discharge in soils at the site. We sample the soil and we're not finding concentrations above our standards. But then you test the groundwater and it's screaming. So we are issuing new guidance and recommendations. I gave a presentation on it a few weeks ago to our regulated community. Basically our recommendation is you need to sample both your soil and your groundwater due to the mobility of PFAS and how it may be retained differently depending on the soil type as well as the fact that the discharge may have happened decades ago. There's many factors at play. So that's something that we're seeing in New Jersey. We're also seeing a lot of, for groundwater, commingled plume scenarios where you're trying to tease apart what's attributable to your site and what's attributable to an off site source. New Jersey does allow the remediating party to conduct an investigation and document an off site source. If they can demonstrate that, then they are no longer liable for cleaning up that contamination. But then the issue lies, as the previous person mentioned, who cleans that up? If they're not liable, do they find the source? If they do, that's great. But in a lot of cases, that's not necessarily going to be the case. And New Jersey, at this point, while we're working on improving our resources for remediating and investigating PFAS, it's not something we're going to be able to do everywhere.

1:03:52 [EPA Speaker 1]
Great. Thank you, [External Participant 3]. Any other states or territories with similar situations or other thoughts on these liability and insurance issues, and partitioning between soils and groundwater? We have a question from North Carolina. They're looking at land application of PFAS in biosolids or just biosolids where you're detecting PFAS and they're trying to identify a control group that is truly comparable to agricultural fields but isolates the biosolids variable. And [External Participant 14] is asking whether anyone can provide guidance on site selection criteria for representative background for agricultural soils. I know we hadn't really specifically talked about agricultural soils and it's a little bit

different with biosolids applications, but given the expertise they assembled here, perhaps there are people who would like to comment on that as well. And [redacted].

1:05:41 [EPA Speaker 1]
Yes, [External Participant 15].

1:05:45 [External Participant 15]
Hi, I don't know if I'm in the right session. I'm with Michigan State University Extension, but the state worked for me and I work in agriculture and been working with the state on collecting data for background agricultural soils. So we are still working on that. We did quite a few in the fall and our criteria was fields that have been traditionally managed with herbicides, pesticides. We tried for fields that were not irrigated, but in some areas the state, like pretty much every field is irrigated and they had to be at least 2 miles from a known PFAS site or area of interest and have no soil amendments added outside of traditional agriculture. So no biosolids, no paper sludge, no tannery waste, and the 17 soils we've got back so far are very similar to the forested samples that Eagle did three or four years ago. So feel free to contact me if you want to talk about that more or more information on what we're considering our baseline agricultural soils.

1:06:59 [EPA Speaker 1]
Great, thank you, [External Participant 15]. That sounds like it was helpful to [External Participant 14]. Thank you.

1:07:09
Other thoughts or comments from anyone participating today on really any of our 4 topics. And again, you can put things in the chat. If you think of anything that you wanted to add later, you can use our e-mail box. Any other comments for today? I am not seeing any more hands raised. So thank you all for participating today and sharing your experiences with us. Thank you to everyone who's also already emailed us with their comments and thoughts through our e-mail box. We really appreciate that and I will turn this back over to [EPA Speaker 2].

1:08:28 [EPA Speaker 2]
Thank you, [EPA Speaker 1]. Next slide, [EPA Speaker 4]. So thank you everyone for staying for so long. Appreciate it. Over 200 people stayed for over an hour and a half, so I know everyone's time is very limited, so thank you. So if you'd like to share written remarks, please e-mail them by May 29th to the e-mail address shown on this line. There are multiple people monitoring that e-mail, so a real person will look at it. And then with that

said, I'm going to go ahead and close today's session. Thank you for joining us and I hope you have a lovely rest of your day.

[END OF EDITED TRANSCRIPT OF ZOOM SESSION]

[BEGINNING OF INPUT FROM ZOOM CHAT]

14:18:06 From [External Participant 2]: New York's study is available online:

14:18:09 From [External Participant 2]: https://dec.ny.gov/sites/default/files/2025-12/pfasbackgroundstudy.pdf

14:19:32 From [External Participant 16]: I do not feel qualified to discuss the ME soil background study as it was before I was part of MEDEP, but a study was done in 2022. See here: https://www.maine.gov/dep/spills/topics/pfas/documents/archive/Maine_Background_PFAS_Study_Report.pdf

14:19:48 [redacted]

14:20:26 From [External Participant 17]: Reacted to "https://dec.ny.gov/s..." with a thumbs up emoji

14:22:17 [redacted]

14:22:38 From [External Participant 2]: New York proposed soil cleanup levels for PFOA and PFOS a few years ago. After seeing New Hampshire's background study, we realized that we needed to take background into consideration. Now that our study is done, we plan to proposed cleanup levels this year.

14:22:55 From [External Participant 18]: Reacted to "New York proposed so..." with a thumbs up emoji

14:25:05 From [External Participant 24]: Reacted to "New York proposed ..." with a thumbs up emoji

14:27:42 From [EPA Speaker 3]: You can share written remarks via email to Low_PFAS_Soil@epa.gov until May 29, 2026.

14:28:54 From [External Participant 22]: With regard to statistics and establishing background levels, ITRC published potentially useful guidance: Establishing Soil Background – Soil Background and Risk Assessment

14:29:59 From [External Participant 18]: What is the EPA doing to address this? Many states may not have the resources to conduct a soil background study.

14:30:31 From [External Participant 5] : Replying to "I do not feel qualified to discuss the ME soil background study as it was before I was part of MEDEP, but a study was done in 2022. See here: https://www.maine.gov/dep/spills/topics/pfas/documents/archive/Maine_Background_PFAS_Study_Report.pdf"

Maine DEP uses its background values to guide cleanups with the goal of not trying to remediate sites below the ambient levels around the site. We allow a site-specific (anthropogenic or otherwise) background study with DEP approval.

14:30:52 From [External Participant 5]: Reacted to "With regard to statistics and establishing background levels, ITRC published potentially useful guidance: Establishing Soil Background – Soil Background and Risk Assessment" with a thumbs up emoji

14:31:28 From [External Participant 6]: Reacted to "With regard to stati..." with a thumbs up emoji

14:38:08 From [External Participant 19]: Reacted to "With regard to stati..." with a thumbs up emoji

14:39:32 From [External Participant 20]: SC has the same issue with the textile mills. We have landfills of PFAS sludge (also contaminated with metals), which lead to GW getting contaminated to about 130,000 ppt. This site was a superfund site and was delisted before we knew about the PFAS issue. The land is currently going to be developed for mixed residential. The state of SC is trying to figure out currently what to do.

14:42:27 From [External Participant 21]: What kind of treatment was used for soils?

14:43:34 From [External Participant 9]: Alaska has approved thermal desorption to remove PFAS.

14:43:47 From [External Participant 21]: Thanks.

14:44:27 From [External Participant 5]: Maine has rules on "residuals" including excess soil - those rules are based on leaching values for many constituents including PFAS and are being revised - there was a case here in ME where a large quantity of loam was ready to be taken offsite as part of a major redevelopment and based on PFAS levels that soil had to be landscaped and covered onsite.

14:46:13 [redacted]

14:47:41 [redacted]

14:47:54 From [External Participant 6]: To ensure everyone is on the same page, it might be helpful to clarify a general range that ‘low concentrations’ is intended to represent in this conversation.

14:48:06 From [External Participant 22]: Reacted to "To ensure everyone is on the same page, it might be helpful to clarify a general range that ‘low concentrations’ is intended to represent in this conversation." with a thumbs up emoji

14:48:53 From [External Participant 23]: NC is also seeing landfills require PFAS sampling even for soils from sites that don't have a known PFAS source

14:49:45 From [External Participant 23]: Reacted to "To ensure everyone i..." with a 100 emoji

14:50:13 From [External Participant 14] : Reacted to "NC is also seeing la..." with a thumbs up emoji

14:53:41 From [External Participant 25]: SC is also seeing landfills hesitant to accept PFAS impacted soils.

14:55:46 From [External Participant 26] : As a RCRA C compliance regulator, I have encountered the problem of competing regulations and treatment options due to soil

and/or PPE contaminated with RCRA C wastes, TSCA PCBs and PFAS. Waste management (e.g., accumulation v storage times) and disposal challenges.

14:55:57 From [External Participant 27] : Reacted to "NC is also seeing la..." with a thumbs up emoji

14:56:52 From [EPA Speaker 2]: If you can not find the "Raise hand" icon, click on "Reactions" button on your Zoom toolbar. Depending on your device or Zoom version, you may also need to click "More" (the three dots) to find it. On some devices, it may appear under the Participants panel as well.

14:59:11 [redacted]

15:08:54 From [External Participant 28] : It's certainly a more sensitive topic from a regulatory standpoint!

15:09:01 From [External Participant 29] : For people who have already conducted soil monitoring surveys, what materials/kit brands would you recommend to test the soil?

15:14:56 From [External Participant 14] : In light of NCDEQ's recent biosolids study and the detection of PFAS in land application fields, we are looking to establish statistically defensible background levels for comparison.

Our primary challenge is identifying a control group that is truly comparable to agricultural fields but isolates the biosolids variable. Could anyone provide guidance on site-selection criteria for a 'representative agricultural background'?

Here's a link to our study:

https://www.deq.nc.gov/deq-study-pfas-wastewater-and-biosolids

15:15:25 From [redacted].

15:15:35 From [External Participant 27] : [redacted]

15:16:22 From [redacted]

15:16:33 From [redacted]

15:17:39 From [redacted]

15:17:49 From [redacted]

15:18:59 From [External Participant 30] : Leachate water from landfills often enters the POTWs who are passive receivers of these compounds are not equipped to treat PFAS compounds. The PFAS compounds often become concentrated within the POTWs and exit through the effluent water of the POTW.

15:19:03 [redacted]

15:19:24 From [External Participant 6]: Do you have a slide showing all four topics?

15:19:31 [redacted]

15:19:32 From [redacted]

be cautious of fields where manure was spread from farms that did use biosolids or other amendments

[END OF INPUT FROM ZOOM CHAT]

Edited Transcript: Engagement Session for **Environmental Groups/NGOs:** Soil with Low Concentrations of PFAS

This is an edited version of the audio1006526842.m4a file generated from the Engagement Session for Environmental Groups and NGOs: Soil with Low Concentrations of PFAS held via ZOOM April 28, 2026 from 2:00 PM to approximately 2:50 PM Eastern Daylight Time.

Recording began at the beginning of the ZOOM session.

[BEGIN EDITED TRANSCRIPT OF ZOOM RECORDED SESSION]

0:23 [EPA Speaker 2]
Welcome everyone, you are here for the engagement session with environmental and non

governmental organizations to discuss soil with low concentrations of PFAS. We're going to get started in just a moment, letting folks come in. All right, welcome everyone. It is 2 o'clock eastern on my computer. So we're going to get started. I do see some people still rolling in. So we're going to start with some housekeeping things and then get to the meat of the conversation.

So welcome everyone to today's virtual engagement session on soils with low concentrations of PFAS, which is hosted by the US Environmental Protection Agency. My name is [EPA Speaker 2] and I work in EPA's Office of Resource Conservation and Recovery and I'm going to be serving as your moderator and Technical Support today. We're excited to have you here with our partners from environmental and non governmental organizations and we are looking forward to the conversation. Thank you. Next slide.

EPA is holding a series of engagement sessions with interested organizations on the topics of PFAS impacted soils. Our main goal is really simple. We want to hear from you and learn about your experiences managing PFAS impacted soils.

So a few quick housekeeping items before you begin. Your Zoom controls are in the toolbar along the bottom of your screen. Your toolbar may look a little different than the one on this slide. If you don't immediately see a feature, try clicking on the More button or explore the toolbar at the bottom or the top of your screen. Most of the controls can be found there. So for audio, you can either join by your computer or phone. If your computer mic isn't working, you can click the arrow next to the Mute, unmute and select Switch to Phone Audio. Then follow those prompts. And then to participate, you can either use the chat feature or the raise hand feature if you'd like to verbally speak. We'll be monitoring the chat, consolidating remarks and bringing them into the discussion as time allows. And then for any technical issues, please message us in the chat or send me an e-mail and we'll help troubleshoot. I'll put my e-mail address in the chat in a few moments. And then closed Captions are also available. You can use the CC Live transcription icon in the bottom toolbar to turn them on or to adjust any settings to your preference.

Today's session is being recorded to ensure we just capture all the information that's shared.

Next slide, please.

The purpose of today's session is to hear about your experiences managing soils that have low levels of PFAS and any challenges or uncertainties that stem from handling such soil. Please note that this session does not cover topics that relate to cleanups of soil contaminated with PFAS from specific known sources.

We'll be focusing on PFOA and PFOS, two of the most studied PFAS chemicals. Several states have set default screening levels and clean up levels, which vary by states. So low

concentrations of PFAS have been found even in places from far away known sources. They can travel long distances through air and settle through rain or dust, which is why they're showing up in remote or non industrial areas.

Several Northeastern states have conducted statewide background studies showing that they're detectable in most surface soils where no sources have been identified.

Next slide, please.

So we've prepared 3 topics to explore with you and you'll see those topics we plan to discuss on this slide.

We do ask that you try and keep your comments under 3 minutes so we can hear from as many participants as possible.

Next slide.

We also ask that you please refrain from sharing any confidential business information, private details or any marketing or products of services.

We want to keep the dialogue open and appropriate for this forum.

Next slide.

I'm now pleased to turn it off to [EPA Speaker 5]. She's the Acting Deputy Office Director in the Office of Resource Conservation and Recovery, and she'll be providing some opening remarks. [EPA Speaker 5].

5:24 [EPA Speaker 5]

Thank you, [EPA Speaker 2]. Hello everyone, and thank you for joining today's engagement session. Focused on soil with low concentrations of PFAS, this administration is committed to tackling PFAS contamination. Within EPA's Office of Land and Emergency Management, we are addressing PFAS by developing methods for identifying PFAS contamination, exploring fate and transport, developing tools for risk assessment, and issuing guidance regarding destruction and disposal technologies.

Our team in OLEM is also looking into available information related to the management of soil with low concentrations of certain PFAS chemicals, specifically the two chemistries PFOA and PFOS. We recognize that both chemistries present unique technical and policy challenges due to their widespread presence, persistent nature, and decades of extensive use in manufacturing. This has created uncertainty about appropriate management approaches and raised liability considerations for some groups. Some states have taken the lead by issuing soil PFAS regulations and guidance and conducting statewide studies to map PFOA PFOS distribution, including in remote areas. To understand the breadth and depth of this topic, we want to hear from you about issues you are encountering with these

soils from your organizational perspective. The team has prepared several topic areas to guide the session and would like to hear about specific challenges, concerns or approaches you have encountered with low concentration of PFOA and PFOS in soil. We encourage you to share your experiences and thoughts. Thank you again for your time and engagement. I'll turn it back to [EPA Speaker 2].

6:58 [EPA Speaker 2]
Thanks, [EPA Speaker 5]. And now I'm going to turn it over to our facilitator, [EPA Speaker 1]. She's a manager in the Office of Resource Conservation and Recovery. And [EPA Speaker 1]'s going to walk us through these three topics, and we're going to open the floor for a discussion. Please remember to state your name, whom you're with or representing, unmute and to turn your camera on if you're comfortable when you speak. [EPA Speaker 1], it's all yours.

7:28 [EPA Speaker 1]
Thank you, [EPA Speaker 2], and thank you, [EPA Speaker 5] for the opening remarks. Thank you everyone for joining us today. Before we dive into our first topic, I would like to remind any press in attendance to please direct your inquiries to the Office of External Affairs by emailing your questions to press at epa.gov. GOV

All right. So our first topic today is about understanding specific local and state level efforts that your organization may be involved with related to PFAS. We are really interested in hearing about any work that you're conducting with local communities or developers or others on issues related to soil containing low concentration of PFAS and focusing mainly on PFOA and PFOS, at least for us, given that's what most of the states have done as well. So some states might consider these low concentrations, background concentrations that, as [EPA Speaker 2] mentioned, are concentrations in soils that are far from any known sources.

So please raise your hand if you'd like to speak or add your remarks into the chat. And I will call on people as hands are raised. And also [EPA Speaker 2] just put her e-mail into the chat. If anyone's having technical difficulties, please contact her.

Any comments or thoughts from anyone out there who would like to share about their experiences with these types of low level PFAS soils? We are also interested in hearing about any circumstances where you are using any of the state developed regulations or guidance for PFOA or PFOS, whether that is relevant to your organization in any way.

I'm looking at some of the questions in the chat. What do you mean by efforts? I mean really anything that your organization is doing. Some NGOs are purchasing protecting lands or helping with maybe brownfields developments in communities or other types of projects. So I guess by efforts the broadest interpretation of what your organization may be

doing. And in terms of low levels of PFAS in soils, we really are meaning what would be considered a background level. So just levels of PFOA and PFOS that you would be finding in soils that are far from any known sources of contamination, but are most likely spread through some kind of atmospheric wet or dry deposition, rain or dust falling on those soils. Hopefully that helps to clarify.

Are there any comments anyone would like to contribute?

I also want to mention we have an e-mail box that we've set up for these engagement sessions, so you can e-mail us with additional comments or information that you want to contribute, and we'll put that e-mail address into the chat as well.

This is a quiet group today.

We had our session with the States and territories yesterday.

I'm seeing some comments in the chat. This one is from [External Participant 31] and apologies if I'm mispronouncing your name. I work with communities, farmers, and private well owners in Wisconsin to help them understand emerging contaminants like PFAS and available resources. I primarily work in drinking water but have increasingly been getting questions about PFAS in soil and its impact on crops. Would love to learn more about resources regarding PFAS in soil that could be shared with the public or who is doing research in this area.

That definitely sounds like some comments that we were hearing a little bit yesterday maybe more on groundwater leachate and getting into groundwater. I think for drinking water, those are questions that are likely more for our Office of Water who are certainly dealing with that. But we can try to point you in the right direction for some answers from our Office of Water who's working more on PFAS and drinking water soils and agricultural soils and impacts on crops. Those are definitely some of the concerns that we've also heard. If I could ask, are you hearing that from communities and farmers, is that with respect to what's just already in their soils or does it have to do more with bio-solids? Do you know, [External Participant 31]?

15:16 [External Participant 31]
Yeah, so bio solids are Hi, I'm [External Participant 31]. Bio solids are definitely a topic of discussion here in Wisconsin. The DNR in Wisconsin recently found a place in northern Wisconsin called the town of Stella, which has really high levels of PFAS in their water. And they recently declared the source was from biosolids and land spreading. So it's definitely coming up quite a bit. But we also are seeing evidence in Wisconsin of PFAS getting into areas where we do maple syrup production from deposition from the air. And so I've been getting a lot of questions about PFAS in soil. How does it bind to soil? Does it move? Once it's in the soil is it entering our waters and entering our crops? Those kinds of questions

from maple syrup producers, from farmers and from communities like local government asking those questions. So I would love if anyone has any resources around PFAS in soil. I've been kind of struggling to find stuff that's based in the United States, so I would love just any directions in that. Thank you.

16:27 [EPA Speaker 1]
Great, thank you. Thank you for that clarification as well. That's helpful. And can inform us on trying to maybe point you towards other resources or research. And I just want to reiterate for this session, we really are not focused on the highly contaminated or sites where you have known sources of PFAS contamination. In this case we're interested in these low concentrations of PFAS where it is an unknown source of the PFOA or PFOS that are found in soils. So that's what the focus for today will be.

Any other thoughts from anyone on encountering these low concentration soils in your work with your organization?

All right. Well, before we move on to our second topic, I guess maybe I'll just say a little bit more about what we heard yesterday from States and territories there. We discussed and heard quite a bit from them about sampling to determine background values in their States and some of the work that they were doing on that. There were a lot of efforts in the Northeast and other states as well. But the Northeastern states primarily now were doing quite a bit of in state, or state by state sampling of a lot of sites that they're using to try to determine background values and inform a variety of approaches to PFAS. We also heard from them about how they were managing these types of low concentration soils either on site or through redesign of projects to take that into account. And then landfills, as you might expect with state regulators were a big point of discussion whether or not some of these facilities were accepting those low concentration soils, what they were doing in terms of management with those soils. And then also testing of leaching from those landfills, for example. So that was quite a bit of the discussion with our state and territory agency representatives yesterday.

I see another comment from [External Participant 32] and maybe if you could either add to the chat or unmute yourself to maybe give a little bit more context. You say that my members have concerns about the impacts of clean up standards and I'm guessing these are all in Massachusetts. Is that right, related to construction projects where they have to dig in soils that have background levels above these standards? Can you maybe provide a little more. Massachusetts and New Hampshire? OK. Do you have a little bit more information about your membership, your organization that you can add? That would be great. And anything more that you might be able to add about what those concerns are? Is it. OK, so public utilities are the members and are the concerns health, environmental exposure. What are any, I guess specific concerns that you're hearing? OK, having to

dispose of the soils from a construction project in landfills. And is the concern similar to what we were hearing yesterday of landfills not accepting those soils and then having nowhere to go with them or nowhere to put them? Cost impacts? Yeah, great. Yeah. Thank you, [External Participant 32]. That's very informative. That's helpful to hear as well. That definitely echoes some of the similar comments that we were getting yesterday from a variety of states, definitely not a unique problem out there. So thank you for that. I see a question from [External Participant 33] about repairing damage to land where the soil has been removed. Can you clarify a little more what you mean by that? Is this

23:56 [External Participant 33]
Sure. So if we look at background studies of low levels of concentrations in New York and New Jersey, for example, you're going to find that large percentages of the entire states are impacted by those levels. And if your answer is to pick up the soils and send them to the landfill, how would you restore the soil on half the state or more?

24:25 [EPA Speaker 1]

Right. And are you seeing that type of work already being done or this is more of the hypothetical question of

24:36 [External Participant 33]

It is more hypothetical, but I'm looking for solutions. How would you repair these soils and the whole concept of ripping up this much soil, whether you would put it through a thermal process or some other process, the destruction to those soils would be the cure may be worse than a poison.

25:04 [EPA Speaker 1]
Yeah, that is definitely a valid concern and comment. Thank you. Don't know that we have any answers unfortunately today, but we are definitely collecting all the comments and questions. So thank you for that.

All right, why don't we move on to our topic #2. So this is yet more about your membership of your organizations and any membership input that you've heard on challenges, concerns or approaches to address low concentration of PFAS in soils. We're really interested in hearing about the types of situations that your members or you are encountering in these communities where concerns are raised about PFAS and soil. Yes, [External Participant 34].

26:22 [External Participant 34]

Hi, thanks for the opportunity. I think one of the issues is if EPA would look upstream at the production and the use of the PFAS that are ending up in the soil either from the manufacturer, from the use, from wastewater, from POTWS, et cetera. And use authority,

your Toxic Substances Control Act authority, you could address a lot of the contamination from these man made chemicals that have, as you noted, a broad contamination. Thanks.

27:12 [EPA Speaker 1]

Thank you, [External Participant 34]. Other comments that people would like to add. Yes. Oh, I thought I saw a hand.

27:40 [External Participant 35]
Oh, hi. Yeah. Hello. Thank you for having us. I am from the Ironbound, which is located in Newark, NJ. And here we are facing a lot of cumulative impacts beyond biosolids and certain different types of contamination. But what I wanted to say is that, for example, with water treatment facilities or with facilities that are producing biosolids and that are treating wastewater and they're treating waste in general that are producing biosolids that are still having PFAS concentration in them and them selling them also as a certain type of fertilizer. That is where we are seeing how there is a spreading of PFAS in different types of soils. So here at Ironbound, we're very concerned about the ways and the regulations that are going to be put in place that determines how biosolids are moved beyond their production.

29:07 [EPA Speaker 1]
Great, thank you for that comment. And perhaps as you all think about this topic, maybe if you have any examples of the types of concerns this raises for your groups as well, whether these are health, environmental, liability or insurance related. You know, we would like to hear specific examples what you're hearing from your communities or developers or constituents or your members about those types of concerns specifically related to these low concentrations that may be found more frequently than even higher concentrations. Yes, [External Participant 34].

30:33 [External Participant 34]

Thanks for letting me take the floor again. And again, I'm [External Participant 34] with Environmental Defense Fund. And you know as the previous speaker spoke about cumulative risk being a concern and also aggregate. And while folks are exposed to what may be low levels in soil, they're exposed to PFAS from many other sources including from products. And I think it's very important to consider the aggregate risk and the cumulative risk among the different types of PFAS that people are exposed to. And on a related note, that's why it's so important to get broader information on the PFAS that are being produced and used. And it just in some, you know, you can't look at this in isolation of the other sources because that would give up a false picture of the risks, including those most vulnerable, face from PFAS. Thanks.

31:43 [EPA Speaker 1]
Great. Thank you. And I see [External Participant 32's] comment on source reduction that

would certainly reduce some of the atmospheric deposition. Other thoughts on what you're hearing from your members. I see the question from [External Participant 33] about the definition of PFAS. We are currently mostly focusing on PFOS and PFOA as [EPA Speaker 2] had mentioned in the opening. And mostly it's because the states have used those two to develop a lot of the soil screening and soil cleanup levels. They just are the most prevalent with data and information on soil concentrations. And so that's currently what we are focusing on as well. So yes, PFOA and PFOS as you've put in the chat. Yes and there are a number of precursors that degrade to PFOA and PFOS so it's more frequently found. Those two.

And maybe some other things to consider if your organization works across multiple locations or nationally, we would like to better understand any regional differences in concerns that you're hearing or approaches that states are taking to address low concentrations of PFAS in soils. As I mentioned before, not all states have these soil screening and clean up levels. It also varies state by state. We know the Northeastern states are conducting a variety of sampling and analyses. Similar efforts occur in some other States and other parts of the country. So we'd be interested in hearing your feedback and understanding how these state by state or regional differences may be reflected in the input or concern from your members in your organization. I don't know if we have any organizations out there who are involved in some of the redevelopment, whether it's a brownfields redevelopment or other type of construction or development. Whether you're assisting community groups. We'd love to hear your perspective on any of the primary concerns related to low concentration of PFAS in soils. I don't know whether we have any of those organizations joining us today. Other thoughts or comments on this topic. Don't see anything else in the chat. Very quiet group today. Maybe it's the grey weather outside. At least here in DC it's grey. Preparing to rain tomorrow.

All right. Well, let's move on to our third topic. So this is management options of soils with low concentrations of PFAS and here we would be interested in hearing more about the types of management options available for soil containing low concentrations of PFAS, particularly if there are approaches that can help reduce uncertainty, facilitate safe development or redevelopment of sites.

We'd love to hear from any of you if you have any thoughts on that or any experience with that or that's something that your organization is dealing with. Or if anyone has any experience with on site management of these kinds of soils or has worked with any of your states or other states beneficial use programs when it comes to dealing with these kinds of soils. We're interested in in your perspectives on long term safeguards that your organization thinks should be considered for these types of soils containing low concentrations of PFAS. I see a comment in the chat from [External Participant 32]. Some

members are involved with research using biochar for cleaning up PFAS impacted soils, early stages, but promising. And [External Participant 32], can I ask, is that stabilizing PFAS in place? Is that essentially what the biochar is used for? OK, good question. Excellent. I've seen research on activated carbon, things like that, other types of technologies to stabilize the PFAS in soil so that there's less or no migration to groundwater. And I wonder if biochar is doing a similar kind of thing in the soils. Yeah, it adsorbs to the biochar and then yeah, I wonder if it's being left in place as well. But that's interesting.

Any other organizations out there with research or experience with that kind of management or longer term thinking about how the low concentrations of PFAS are managed in place or on site. And then just in thinking about some of the earlier points on background PFAS concentrations, we also would be interested in hearing your perspective on the relevance of background concentrations to the management of soil containing low concentration of PFAS, if folks have any thoughts or input on that?

42:57 [EPA Speaker 1]
Yes, [External Participant 34].

43:02 [External Participant 34]
Thank you. Well, I have a fundamental issue with calling it background because it's not background. It's an anthropogenic contamination that's at a low level. And I think when you characterize it as background, people think of levels of naturally occurring materials at whatever the natural levels. And sorry, that sounds a little convoluted, but for example, lead can be naturally occurring, but what you see in the environment are not true background levels for blood. They're from anthropogenic anyway. So I think

43:47 [EPA Speaker 1]

Right.

43:47 [External Participant 34]

You know, double here, it is not naturally occurring. And so whatever is in the air, water, soil in the environment is not naturally occurring and it's not background. And I think setting that makes it seem less problematic. So I think it's not accurate, just technically it's not accurate. So I would hope that EPA with all the scientists that are still there that yeah, you would characterize it not as background.

44:36 [EPA Speaker 1]
Thank you.

44:36 [External Participant 34]

Thank you.

44:45 [EPA Speaker 1]

Other comments on that topic, other thoughts about these low concentration PFAS. And just as a reminder, if any other comments come to mind that you would like to share with us at a later date, we do have our e-mail box for these engagement sessions that you can use. The e-mail box will be monitored and answered through the end of May, May 29th specifically. So you can always give us more input there.

We also have another session May 12th if you would like to participate there. And that one I think on the website it says it's an overflow session. So it'll be for all of the different stakeholder groups that we are trying to have these sessions with. So States and territories, environmental and non governmental organizations, business community, tribes and local and county government. So those are the five main sessions. And then that May 12th session will have representatives from all of them. If you're interested in participating or listening for that one as well.

So one final thought or hopefully thoughts from you, we would love to hear about any considerations related to transporting these types of soils, whether that is something that has come up in your organizations. We've heard yesterday that some of the states they know that some soils are moving from state to state. And we'd be interested in hearing from any organizations that are dealing with that or have received any input from your members on that in terms of the management of these types of soils?

All right. I'm not seeing any more comments or questions in the chat. No hands raised and thank you all for participating today and sharing your experiences. Again, any additional comments can go to the e-mail box. And if we switch to that last slide, I will turn it back over to [EPA Speaker 2]. And thank you all.

48:39 [EPA Speaker 2]
Thank you, [EPA Speaker 1], and thank you everyone for your participation today. After this, like [EPA Speaker 1] was saying, if you'd like to share some written remarks, please e-mail them by May 29th to the e-mail address shown on this slide. And so with that, we're going to go ahead and close the session. And thank you for joining and we hope you enjoy the rest of your day.

[END OF EDITED TRANSCRIPT OF ZOOM SESSION]

[BEGINNING OF INPUT FROM ZOOM CHAT]

14:08:15 From [EPA Speaker 2]: If you are experiencing any technical issues, please email [EPA Speaker 2]@epa.gov or send a private message through the Chat.

14:09:25 From [External Participant 35]: What do you mean by efforts?

14:09:35 From [External Participant 33]: What is considered low level in soil?

14:11:07 From [External Participant 34]: Why is this being considered background?

14:11:33 From [External Participant 35]: I think efforts should be coming from the EPA which I am not seeing

14:12:09 From [External Participant 31]: I work with communities, farmers, and private well owners in WI to help them understand emerging contaminants like PFAS and available resources. I primarily work in drinking water, but I have increasingly been getting questions about PFAS in soil and it's impact on crops. I would love to learn more about resources regarding pfas in soil that could be shared with the public or who is doing research in this area.

14:12:14 From [External Participant 35]: For example how there is a plan for an ICE detention facility for families and children on one of the most PFAS contaminated sites in the country

14:12:44 [redacted]

14:15:01 [redacted]

14:18:03 From [External Participant 32]: My members have concerns about the impacts of clean up standards such as CHAPTER Env-Or 600 CONTAMINATED SITE MANAGEMENT public comments and 310 CMR 40.00: Massachusetts contingency plan | Mass.gov related to construction projects where they have to dig in soils that have background levels above these standards.

14:20:38 From [External Participant 32]: Mass and NH

14:21:06 From [External Participant 32]: North East Biosolids & Residuals Association -- public clean water utilities are my members

14:21:32 From [External Participant 32]: Having to dispose of soils from construction project

14:21:51 From [External Participant 32]: Cost impacts, no outlets, etc.

14:22:28 From [External Participant 33]: How do you repair the damage to the land where all the soil is removed?

14:28:17 From [External Participant 34]: I failed to mention when I made my comment, I am with the Environmental Defense Fund. Thanks!

14:30:57 From [External Participant 32]: Replying to "I failed to mention ..."

I think we can all agree on SOURCE REDUCTION!!

14:31:06 From [External Participant 35]: Reacted to "I think we can all a..." with a heart emoji

14:31:13 From [External Participant 34]: Reacted to "I think we can all a..." with a heart emoji

14:31:44 From [External Participant 33]: What is your definition of pfas? The 40 in 1633 or the entire class? On fluorinate carbon or 2?

14:32:31 From [External Participant 33]: So pfoa and pfos?

14:32:51 From [External Participant 33]: Thank you

14:38:29 From [External Participant 32], NEBRA : Some of my members are involved with research using biochar for cleaning up PFAS-impacted soils. It's in the early stages but promising.

14:39:17 From [External Participant 32], NEBRA : Good question!! I am not entirely sure

14:39:58 From [External Participant 32], NEBRA : I know it adsorbs to the biochar but not sure what they are doing with it after

14:48:13 From [External Participant 34]: Thank you for providing this opportunity

[END OF INPUT FROM ZOOM CHAT]

Edited Transcript: Engagement Session for the **Business Community:** Soil with Low Concentrations of PFAS

This is an edited version of the audio1733516472.m4a file generated from the Engagement Session for the Business Community: Soil with Low Concentrations of PFAS held via ZOOM April 298, 2026 from 2:00 PM to approximately 3:20 PM Eastern Daylight Time. Recording began at the beginning of the ZOOM session.

Recording began near the beginning of the ZOOM session:

[BEGIN EDITED TRANSCRIPT OF ZOOM RECORDED SESSION]

0:02 [EPA Speaker 6]
OK. We do have recording up and live. If it's all right, I'm going to go on mute to turn off my camera and I'll begin admitting it.

0:08 [EPA Speaker 3]
Thank you. Hello, everyone. It is 2:00 PM Eastern Time, and we will go ahead and start. A warm welcome to today's virtual engagement session on soils with low concentrations of PFAS hosted by the US Environmental Protection Agency. My name is [EPA Speaker 3] with EPA's Office of Resource Conservation and Recovery, and I'm your moderator today. We are excited to be here with participants representing the business community. I see we have a lot of people joining us today and the number is still rising, so great to see this level of interest.

EPA is hosting a series of engagement sessions with interested organizations on PFAS impacted soils.
Our main goal is to hear from you and learn about your experiences managing soils with low concentrations of PFAS. Over the past two days, we held sessions with state and territories and with environmental NGOs and gained helpful insights into their efforts and the challenges of managing PFAS impacted soil. And we are hoping for the same outcome today. So thank you for being here with us. And before we dive into the exciting part, a few quick housekeeping items. Your zoom controls are in the toolbar along the bottom of your screen. Your toolbar may look a little different than the one you see on your slide. If you don't immediately see a feature, try clicking the More button or exploring the toolbar at the bottom of your screen. Most of the controls can be found there. You can join by computer or phone. If your computer mic isn't working, click the arrow next to Mute, Unmute and select Switch to Phone Audio and then follow the prompts. Closed captions are available. Use the CC Live Transcript icon on the bottom toolbar to turn them on or adjust settings. To share comments verbally, please use the Raise Hand feature. You can also submit written comments in the chat. We will monitor the chat, consolidate remarks, and bring them into the discussion as time allows. For any technical issues, please message us in the chat or e-mail [EPA Speaker 6] who is supporting today's session. We will troubleshoot and keep things running smoothly. [EPA Speaker 6's] e-mail will show up in the chat shortly. Today's session is being recorded to document the discussion and accurately capture input.

As I have mentioned earlier, the purpose of today's session is to hear about your experiences managing soil with low concentrations of PFAS and any challenges or uncertainties that stem from handling such soil. I'd like to emphasize that this session does

not cover topics related to cleanups of soil contaminated with PFAS from specific known sources.

We would like to focus today's discussion on 2 specific PFAS chemicals, PFOA and PFOS. Both PFOA and PFOS are ubiquitous and low concentrations show up even in areas far from known PFAS sources. Several northeastern states have conducted statewide background studies demonstrating PFOA and PFOS are detectable in most surface soils even when no sources have been identified. One of the key fate and transport pathways contributing to build up of PFAS in surface soils include atmospheric transport and deposition, wet and dry, and the transformation of PFAS precursors into terminal PFAS such as PFOA and PFOS. Also noting that several states have set default soil screening or clean up concentration levels for PFOA and PFOS. Levels vary by state.

Next slide please. Yes. So we have prepared 3 topics to explore with you shown on this slide. No need to memorize them. They will appear again later in the presentation when we ask for your input. Please keep your comments to two minutes so we can hear from as many participants as possible.

A final note, please refrain from sharing any confidential business information, private details or any marketing of products or services. We want to keep the dialogue open and appropriate for this forum.

And now it is my pleasure to introduce [EPA Speaker 5], Acting Deputy Office Director in the Office of Resource Conservation and Recovery, Office of Land and Emergency Management, who will offer opening remarks. [EPA Speaker 5], please take it away.

5:52 [EPA Speaker 5]
Thank you, [EPA Speaker 3]. Hello, everyone, and thank you for joining us today at the engagement session focused on soil with low concentrations of PFAS. This administration is committed to tackling PFAS contamination. Within EPA's Office of Land and Emergency Management, we are addressing PFAS by developing methods for identifying PFAS contamination, exploring fate and transport, developing tools for risk assessment, and issuing guidance regarding destruction and disposal technologies. To understand the breadth and depth of handling PFAS impacted soil with low concentrations, we want to hear from you about what issues you are encountering with these soils from your business perspective. We recognize that the two chemistries we are focusing on today, PFOA and PFOS, present unique technical and policy challenges due to their widespread presence, persistent nature, and decades of extensive use in manufacturing. This has created uncertainty about appropriate management approaches and raised liability considerations for some groups, including business communities. Some states have taken the lead by

issuing soil PFAS regulations and guidance and conducting statewide studies to map PFOA and PFOS distribution, including in remote areas, to better characterize the presence of PFAS in soil. Our team in OLEM is also assessing information related to the management of soil contaminated with low concentrations of certain PFAS chemicals, specifically the two chemistries, PFOA and PFOS. The team has prepared several topic areas to guide today's session and would like to hear about specific challenges and concerns, including disposal pathways for PFAS impacted soil and how state regulations and guidance on soil PFAS levels have informed your approach. We encourage you to share your experiences and thoughts. Thank you again for your time and engagement. I'll turn it back to [EPA Speaker 3].

7:40 [EPA Speaker 3]
Thank you, [EPA Speaker 5], for your remarks. I will now turn it over to our facilitator, [EPA Speaker 1], a manager in the Office of Resource Conservation Recovery. [EPA Speaker 1] will walk us through the three topics and we'll open the floor for your comments. When called on, please unmute and if you're comfortable, turn on your camera. State your name and the organization you represent. Reminder to please keep your comments to two minutes so everyone has a chance to speak. If you go over, I will pop on camera to signal we need to move on, so hopefully you will see less of me today. You can also submit comments in the chat. [EPA Speaker 1], the floor is yours.

8:21 [EPA Speaker 1]
Thank you, [EPA Speaker 3], and thank you, [EPA Speaker 5] for the opening remarks. Thank you everyone for joining us today. Before we dive into our first topic, I would like to remind any press in attendance to please direct your inquiries to the Office of External Affairs by emailing your questions to press@epa.gov.

All right, on to our first topic.

We are interested in hearing from you on a variety of examples that you might have of construction or redevelopment issues and any solutions. We're particularly interested in understanding whether you're encountering PFAS in soil in your work and under what circumstances you may be testing for PFAS. So as [EPA Speaker 3] had mentioned, please raise your hand if you would like to speak or add remarks to the chat. And I see our first hand raised, [External Participant 36]. And apologies for anyone's name I'm mispronouncing. But [External Participant 36], the floor is yours.

9:39 [External Participant 36]
Thank you for holding this session. My name is [External Participant 36]. I work with Associated General Contractors of America. Our members work on all different kinds of construction projects across the country. And they're really at a loss about what to do

about PFAS on some of these projects. They have a lot of liability for testing and handling them and almost no risk sharing. So, and at the state level, it can be a bit of the wild, Wild West because the states are doing things very differently. So we've been asking EPA to establish a background level for PFAS that is protective of human health and the environment, create clear disposal and handling requirements for PFAS containing materials and waste to avoid exposure to legal and regulatory uncertainty, to set the scope of PFAS of concern like a definition or a list or something that might help get a handle on the host of PFAS that are of issue, hopefully not the whole 12,000 that EPA is talking about. So, but some of the ways that this is showing up in projects is with increased disposal costs. So even without the CERCLA designation and the whole issue of contamination, because of the stigma with that, our members are seeing increased fees for disposal. So they don't have an idea of how much is allowable for disposal under the federal regulations. So states are having their own requirements and landfills are choosing levels that they might feel comfortable with, which often times can be very conservative so they don't run into trouble themselves. There's increased consulting and testing and insurance costs. There's also on site storage concerns. So if you're stockpiling this soil, what do you need to have in place to ensure it's not impacting local streams? So this will impact your storm water protections as well. There's uncertainty about the dredge and fill materials as well. This can be soil, clay or sand that might be impacted by this. And that soil material will need to go someplace. And there's also limiting their use or reuse of these materials on their job sites. We do use a lot of soil and move it around, use it as fill on projects or export it for fill on other projects. And it's hard to know what concentrations will present a risk and whether or not they're able to reuse them and in which circumstances. So it impacts also with imported fill and topsoil because it's hard to know if you're importing clean fill. Now that might not be as big of an issue on a industrial site. But if you're building a school and you need clean fill, how can you be sure that it's clean? So those are some of the issues that our members have mentioned. Hopefully I stayed within the two minutes, but I do appreciate you guys offering us this opportunity.

13:17 [EPA Speaker 1]
Thank you, [External Participant 36], and you definitely touched on a lot of other points that we will come back to during this session. I have lots of follow up questions, but I think I'll give others the opportunities to speak and we'll give you the opportunity to come back on as we touch on those specific topics as well. So thank you for really setting the stage for the session today as well. You are hitting a lot of the points that we really wanted to hear about. Hopefully there are others online who have some thoughts that they would like to share. We're interested in understanding under what circumstances you're testing soils, how frequently you may be encountering PFAS in soils, whether these are low concentrations,

potential background levels of PFAS, whether the state that you're working in has established a background level or not. I guess one quick follow up question, [External Participant 36] from some of our EPA folks here. What do you mean by imported fill? Is it just from outside the state or is it a different geographic area?

14:51 [External Participant 36]
So the preference would be to import fill like soil from areas that are close by because it's expensive to transport large amounts of soil, large long distances. So. And imported is just bringing it on to the project like a material that you would purchase to bring on to a project. So.

15:16 [EPA Speaker 1]
Great. Thank you for that clarification. [External Participant 10], I see your hand up.

15:25 [External Participant 10]
Yeah, again, I didn't know if I was on the right call on Monday. We're a state organization. We're the Department of Transportation here in Virginia. But in this context, when we're developing a project, for a road, we're doing our due diligence to ensure that we're not having contaminants that have an impact on the project. So in the context of PFAS where CERCLA designation for PFOA and PFOS, we're starting to evaluate whether or not there may be a wreck associated with those constituents and doing our due diligence. And invariably, we are finding these very low levels that are consistent with background, and again, background, I know there was a conversation yesterday on what is true background. But to segue into [External Participant 36's] comment and your question about her, we obviously have projects that are either excess projects or we have borrow projects. So if you have a very large cut filled project, you may cut more material until you have to export that off of the project to be dealt with. Or if you're short on dirt, you're bringing dirt in. So, I think for us those are concerns similar to what [External Participant 36] outlined. But if you have an excess project, you're either redesigning part of that project to deal with this uncertainty of how you can manage these low level contaminants, because at least for us as a public agency, even sending it to a landfill in this somewhat unknown territory, that could present a liability down the road for us as well. And for low level constituents is, you know, that's somewhat of a risk. But, I think here in Virginia, there are certain landfills that are accepting it and some that may not be accepting it. So. It is an issue, and I think some of the points that she had were valid points about what those appropriate guardrails of being able to manage these low levels. If that next property over to your project, you're going to have the same levels there because it's either atmospheric deposition or whatever, to where it's the same, you're apples to apples with the levels of concentrations you have within that whole area. So. Anyway, my two cents, I hope that helps clarify some of the issues that we're dealing with at least at DOT level.

18:05 [EPA Speaker 1]
Great. Yes, thank you, [External Participant 10]. Yeah. Any others who want to speak to that topic, other things that we're interested in hearing from you are examples of construction or disposal issues related to these soils containing low concentrations of PFAS. Any solutions that you might have. Management that you are doing for these types of soils when it comes to construction or disposal? Yeah, [External Participant 36], go ahead. I see your question in the chat about testing.

19:00 [External Participant 36]
Some of our members who might be on the line are welcome to speak up if I say something wrong. But from what I understand, knowing when to test is really important and whether it's a property that would necessitate testing. But it's not as straightforward as that because the owner may not be willing to test and you might not have access to the property before you bid to be able to test. So they oftentimes will have to do intensive studying and research of the site in advance to see what liabilities they may have moving into it. So, but they wouldn't generally, as far as I know, be testing multiple times unless they come up to an area that might be suspicious. And then with PFAS, that's different because there's not going to be a foul smell or discolored soil or anything along those lines. So it's going to be harder to tell than if there was like a gas spill.

20:07 [EPA Speaker 1]
Right. And so am I understanding it correctly that the testing that's happening, say after you're buying a piece of property is generally because there's going to be some development or redevelopment of the property and the new owner is unsure of what either liability there may be or how to then dispose of soils or what they'll be responsible for in terms of the excess soils if you're moving them to another site, or is the testing because of all of those uncertainties involving the development or are there other.

21:03 [External Participant 36]
So if they're developing OK. So the contractor wouldn't necessarily be considered the developer, but there are times when they would buy a property, whether for their own use or to hold equipment or something along those lines for the duration of the projects in the area. So in that case, they'll want to be testing for their own background level to make sure that when they leave the site that none of the conditions have changed, they didn't add to. But for as far as testing for the project that they'll be working on for another owner, like an owner of that property, they'll want to make sure that they're not accepting undue liability, especially where they may be responsible contractually for handling any contamination that might be on site. And in that case, they don't want to be on the hook for cleaning up existing PFAS contamination that they didn't cause or contribute to. So they'll want to, they'll try the test if they can or have the owner test if it's a property of concern. So if it was

like an airport or an industrial site that may have produced adhesives or something along those lines. So something that might trigger them to think that there was likely to be PFAS there.

22:40 [EPA Speaker 1]
Great. Thank you for that clarification. That's helpful. Other thoughts or examples perhaps any other examples about impacts on project timelines or costs or halting redevelopment considerations or project entirely? We've heard a little bit about that already. If others have examples, we'd be really interested in hearing your experiences. Or any particular concerns about liability or insurance that we haven't yet talked about?

23:47 [External Participant 37]
Hi, my name is [External Participant 37]. I'm Vice President of Environmental Compliance for McCarthy Building. And I think the discussion here, some of what this is pointing at is really uncertainty that's driving the viability that we've got. When we talk about testing, we test for different reasons. We'll test in situ to see what the site conditions are. We'll also test material that we plan to export for potential disposal or reuse purposes. The problem is that there are no regulatory guidelines associated with concentrations of PFAS that tell us what we should or even can do with those materials. So for example, if we are disposing of soil that has PFAS concentrations, we need to essentially negotiate with the disposal facility to determine what concentrations they are willing to accept in terms of PFAS. All right, there are no RCRA limits for example, for disposal for PFAS. So it's that uncertainty on really all sides of the equation that drives our risk, right.
It's what do we do with the material. Add in that there are two PFAS now that are designated as hazardous substances under CERCLA. The long term liability associated with handling those materials is extremely high, all right, because as you know probably better than I do strict liability under CERCLA, it means it doesn't make any many difference whether we were negligent or not in handling the materials. We retain the risk and the liability associated with those materials, in perpetuity basically. So without any guidance or regulations telling us what we can and can't do, I won't say it's crippling, but it tends to cost a bunch of money. There's a lot of negotiation that goes on with either disposal facilities or the owners that we work for basically because of the additional cost and liability associated with handling those materials. And as a contractor, we're stuck somewhat in the middle of that because on our jobs, we don't really have much of a choice other than to handle materials, either import or export like [External Participant 10] was talking about. So I've run into it on a number of our projects where it slows things down, holds things up because we have to have those negotiations and have those discussions in order to try and limit everybody's liability for handling those materials.

27:10 [EPA Speaker 1]
Great, Thank you. Thank you, [External Participant 37]. Those are all really excellent points. I'll go back to the other [External Participant 10].

27:22 [External Participant 10]
Yeah, I would leap on those comments a little bit. And just in the context of some of the regulatory framework that the Northeast states have done. When we were trying to tackle how to handle some of our soil here on a project, we were looking at some of those other States and seemed like New York in particular had set up some sort of regulatory framework that outlined certain levels that they had determined to be, again, background. And that there was a guide and regulatory framework that the entities could point to about what levels they can just [*unintelligible*] to reuse. And I think that would be helpful to have some development of that at the federal level that states maybe that haven't taken that additional approach to maybe build upon that framework. I don't know, maybe throw that out to some of the other participants about what they've seen in those particular states, and whether that approach was helpful in managing that soil and hedging that those concerns for liability of managing those excess soils that met very low level background levels. So just another two cents.

28:45 [External Participant 37]
Yeah, I think, [External Participant 10], I think that's what [External Participant 36] was intimating a little bit in terms of the Wild West out there is we work in quite a few states around the country and without any kind of direction from EPA, basically they're set up to do whatever it is they feel is proper in terms of setting limits and things like that. Most of the disposal facilities that I've discussed this with, their attitude is that, well, we've probably got PFAS in our leachate anyway, so it's not going to really affect their regulatory standing or their permit by accepting more. But with CERCLA liability, if they come under any kind of enforcement at a later date, it doesn't make any difference to me. So I agree with you that the states are kind of out there doing what they're doing. But I just think that with the lack of guidance or direction from the federal level that it makes it just that much more complicated and adds to the risk as far as I'm concerned.

30:06 [EPA Speaker 1]
And just to clarify something that you just said about the disposal facilities. So for ones where they already know that they've got PFAS say in their leachate, you're seeing that they are maybe more willing to accept some of the soils because they know they already have it. And it's kind of a

30:28 [External Participant 37]
That's right. So it doesn't really increase their risk at this point. It does increase mine.

[EPA Speaker 1] yes.

30:34 [External Participant 37]
The only way to the only way to really limit my risk associated with disposal of PFAS contaminated materials is by sending them to a RCRA hazardous waste landfill. But the cost associated with that is at least 10 times the cost associated with sending it to a regular municipal waste landfill.

31:06 [EPA Speaker 1]
Are you seeing circumstances where you have to do that because of any state rules

[External Participant 37] We have. It just depends on the risk appetite of the owner that we work for. We're in a unique situation because if we dispose of materials like that off of an owner's project, they are typically held as the generator. But because we arranged transportation or maybe arranged the disposal, we're Co generator under CERCLA. So we have liability under the joint and several liability clauses under CERCLA. So that's where that's where the difficult discussions come in, where the owner may have a extremely high risk for AT or risk level or appetite for risk and we don't. We have to somehow convince them to do something that they don't want to do. To protect us essentially.

32:21 [EPA Speaker 1]
Yeah. Thank you for that clarification. Let's see. And in the chat, there's a question for the participants, for anyone that has had a landfill reject soil with low level PFAS concentration, can you share what levels you are seeing? So in case anyone wants to respond to that either in the chat or raise your hand or come on screen. All right. And then maybe while people are thinking about that, we'll move to our second topic.

So for this topic, we've touched on some of the state regulations and guidance already. But in this topic, we really would like to explore a little bit more how you might be using state regulations and guidance on soil PFAS levels. We're really interested in your perspective on the application of soil cleanup levels in your industry, whether these are helpful or create barriers or other kinds of challenges. We'd, you know, we'd love to hear from you on that.

When people gather their thoughts on any of the implications of the state regulations and guidances that are out there, there are quite a few different ones, different levels that are out there across the states. I think our team has collected, you know, it's not quite half of the states, but it's getting close. And in our session on Monday with the States and territories, we definitely talked about some of the sampling that they were doing to determine background values. We heard from them about the effort that that takes and costs and time and how they're trying to determine these kinds of values for soils that are showing PFAS that are far from known sources of contamination.

Any thoughts on that from our participants today? We also would be interested in hearing and understanding your perspectives on whether the state regulations or guidance may be driving any site evaluations of PFAS contamination, whether it's prior to purchase or after purchase. It sounded like from [External Participant 36's] comments earlier that prior to purchase is more difficult. Curious whether other folks on the line have run into any of these issues as well. And I see that comment from [External Participant 36]. "The only feedback we have received from members on this is that states are divergent, some just PFOA, PFOS, some the top six or eight." Yes, there's definitely a pretty heterogeneous landscape out there. PFOA and PFOS seem to be the certainly the two most common that we see in the state, when they set clean up levels or screening levels, it's most frequently for those two. Yes, [External Participant 38]. [External Participant 38], if you're speaking, you are still on mute.

37:43 [External Participant 38]
There we go. [External Participant 38], Zachary Construction, San Antonio, Texas. First off, thank you for holding this session. I think it's very important that we be allowed to provide input and comments on the PFAS matter. As you've heard from my other associates, it's a very vexing problem for us. And in terms of what we're seeing and as far as what states are doing, a lot of the states that we're working in are waiting for EPA to take the lead on this. They're waiting for EPA to establish RCRA disposal guidelines for hazardous and industrial waste disposal. They're waiting for standards for reuse of soil in restricted and unrestricted ways, and they're looking for background concentrations, concentrations where you would consider a PFAS concentration as being protective of public health. And so it seems like a lot of the states we're working in it's a waiting game. And really the key to this is for EPA to really expedite its efforts to develop the RCRA disposal regulations as well as potentially a background concentration and protective concentrations for soil reuse. That would be the real key in solving a lot of these problems. And we've dealt with property transactions where PFAS has been detected. I mean, right now it seems like a lot of the property transactions, the consultants that are doing Phase I and Phase II environmental assessments are treating PFAS as still an emerging contaminant, but it really is not since it's been listed under CERCLA as toxic.

So we have requested specifically that PFOS be tested and have found it in properties we've been looking at and have made various decisions on whether to move forward to those transactions or not. So it's not only affecting construction and public works projects, it's affecting property transactions and sales as well. So I mean, the risk is there. It's an undefined risk at this point. And further definition is needed in terms of the regulations, disposal and reuse regulations. Thanks.

40:20 [EPA Speaker 1]
Thank you, [External Participant 38]. And just a question for you, when you're making those decisions after testing, do you all have a specific threshold in mind or is it really case by case or state by state depending on the regulations or in terms of whatever level comes back for PFAS?

40:47 [External Participant 38]
Yeah, it's a case by case decision. If there are state thresholds, we'll consider those. But, you know, we work in a lot of states that don't really have a lot of guidance. And like I said, they're waiting for the federal government to take action and provide direction. You know, the CERCLA listing was good, but it created all the liability, and we have no framework for managing this.

41:17 [EPA Speaker 1]
All right, thank you, [External Participant 38]. Other thoughts from our participants? Yes, [External Participant 39].

41:32 [External Participant 39]
Hi, good afternoon. Thank you for holding the session. My name is [External Participant 39]. I'm with the Metropolitan Water District of Southern California and we are a government agency as well as a water purveyor. And I just want to echo a lot of the sentiments that have already been brought up earlier. On this topic in particular, without getting to too many details, our strategy prior to the CERCLA listing was to kind of approach PFAS as we saw them with the available screening levels to us. And in California, we had several of those particularly relevant to certain water boards. And we as a government agency take a really conservative approach to that. But as stated earlier by many people, the CERCLA designation really kind of toss that out the window from a risk perspective. So my perspective as an environmental professional might not necessarily jive with the CERCLA liability that our organization is willing to take and that has affected things from Phase Ones like people have mentioned as well as considerations for how we actually do projects. For example, I know this is related to the first slide with the soil disposal that has definitely caused projects to go up in price. And even when we're doing things like installing new pipelines, which our pipelines are very, very large, you can drive cars through them. While in the past we might have done Open French, now we have to consider things like tunnel boring to minimize soil generation and disposal. And that's really costly and a lot of times prohibitive. And those costs really do get passed on to our ratepayers at some point. So I just wanted to bring that up and thank you for the opportunity to discuss this important topic.

43:32 [EPA Speaker 1]
Great. Thank you, [External Participant 39]. Yes, [External Participant 38]. [External Participant 38], is this a new hand or perhaps a leftover hand?

43:57 [External Participant 38]
This is a new hand, sorry.

43:58 [EPA Speaker 1]
OK, perfect.

44:00 [External Participant 38]
So I just wanted to dovetail on that last comment. From a contractor's perspective, when we have unquantifiable risk, which managing PFAS is, we will compensate for that, for that risk by increasing our contingencies and usually that's increasing pricing. And so this uncertainty in dealing with PFAS is creating a situation where the contractor, if they're accepting this risk is adding cost and increasing the cost of public works projects as a end result. So I think that's another cost that goes back to the ratepayers in the prior comments case.

44:53 [EPA Speaker 1]
Yeah, that's a great point. Thank you for raising that as well. Other thoughts from folks and maybe just to highlight the question that we'd had in the chat in case anyone wants to answer. For anyone that's had landfill reject soil with low level PFAS concentrations, can anyone share what levels of PFAS you are seeing in those soils? If anyone wants to share what thresholds they've been seeing where landfills have rejected those soils, maybe that's also a more case by case basis it seems. Yes, [External Participant 38].

46:05 [External Participant 38]
Well, I'll just share this. It's not so much a level in the landfills we've been dealing with. It's a quantity. They will segment out a portion of their landfill annually to accept PFAS or [c][s]ell. And once that's full, they're not accepting anymore. So I can't speak to the concentration levels, but it's what they are subjectively comfortable with taking on an annual basis. And I think [External Participant 37] earlier had mentioned really the only way to dispose of PFAS contaminated soil, no matter what concentration in a manner that complies with what we feel the law is, is to send it to a hazardous waste disposal facility at, you know, 10 to 20 times the cost. And as you know, well, in Texas, there are only two hazardous waste disposal facilities. So that increases your transportation costs and your disposal costs, which increases your project costs. And there's limited hazardous waste disposal capacity within the entire country. We will have to find some alternative solution to this.

47:17 [EPA Speaker 1]
Yeah, absolutely. There are far fewer of those facilities than there are other landfills. And any other participants who like to share anything about examples that you've encountered maybe more after site purchase? Any other maybe unanticipated impacts or barriers that we haven't yet touched on or anything maybe that you'd like to, to reinforce that another participant has discussed.

48:19 [External Participant 40]

Hi, am I unmuted?

48:22 [EPA Speaker 1]

Hi, yes, [External Participant 40], please go ahead.

48:24 [External Participant 40]
Yes, thank you. I work for a contractor, Michaels Corporation. We are utility and infrastructure contractor. We don't do site developments necessarily, but we do utility construction a lot of underground type work. And so we encounter the traditional contaminants and PFAS as well. And really echoing everything that the other ACG members and other callers here have mentioned. But I did want to share an example that's probably somewhat unique, but it opens up, I think an important discussion on this level, this concept of baseline or concentrations that could be considered protective of the environment and human health. So we had a property that we leased from a farm operator and we operate a quarry on one portion of that property. And there was a plane crash on that property near our quarry. And so this is definitely a unique example, but it does get to a point here in a second. And the fire was put out with AFFF and unfortunately a couple individuals did perish in that. But the cleanup was done with just kind of following what we would do in our state, looking for the traditional contaminants of volatiles and things from a, I'll just say a aviation fuel type cleanup as well as now we have this AFFF. So we're looking for PFAS and we're getting to excavation limits and there's still some trace concentrations and our consultant and us we're talking and insurance is involved in everything and looking at this prop. We should really do a background sample. So well upgradient and we knew which direction the wind was coming from that day. We did background sampling and found PFAS in this farm field. We also verified that there was no biosolids spreading on said farm field. However, now we have a situation where we're disclosing results to a landowner and you know, we are very confident that we did not contribute to anything on this background area. However, now he has questions as, what is this all about? And you know, he's reading newspaper articles and everything, of course, but not a technical expert in any way, shape or form. So just that concept of this is everywhere or in many places in the natural environment. What is a level that folks can feel

- will anyone ever feel comfortable with it? Maybe not, but will people be able to accept that yeah, this is out there, this is kind of what's on the landscape and that can kind of set the stage or the tone for developing standards of some sort for cleanups. That's all I wanted to share on that. So.

51:21 [EPA Speaker 1]
Yeah, thank you for sharing that. That's a really interesting example. And I agree, although it sounds unique, I bet it is not nearly as isolated a case. And yeah, maybe the circumstances, but I'm guessing the broader implications of, we know the source here. However, you have other PFAS in other parts and as you said, background and how to convey what a level of background is with no known sources and likely deposition and things like that is, yeah, clearly a more common problem. So thank you for sharing that, [External Participant 40]. Other comments.

We can move on to our third topic, which may be a more popular topic, I don't know. This is about the management and disposal of soils with low concentrations of PFAS. So we love to start the discussion with any experiences that you've had: the challenges of managing soil containing low concentrations of PFAS. We've certainly heard today and in our previous sessions about landfills not accepting soils of these types with even low concentrations. And perhaps there are others who would want to speak, maybe more specifically maybe from the land disposal management perspective on any of the challenges that you're facing.

53:50 [External Participant 37]
Yeah, I can talk a little bit about this. In general, we run into, we'll call it two general situations in terms of disposal or management of soils. One is where we'll go to a site, get a project where the owner already has a soil management plan in place that includes PFAS and where PFAS are on the site. And that soil management plan will direct us as to where we can place soils from different parts of the site. So basically the idea being they know where the PFAS contamination is at whatever level it's at and that they don't want contractors to move PFAS contaminated materials or soils to areas of the site that are not previously contaminated with PFAS. So you don't want to spread the contamination. In those situations, it actually makes it a lot easier for us because we just follow the rules in their soil management plan. And a lot of times those plans have been negotiated with the state regulatory agencies. Not always. And I would tell you that those situations are limited where we've got that soil management plan that's already been worked out and directs us as to how to operate.

The other is where we go to a site where we suspect that there's PFAS contamination. And it's not hard to suspect it, but we look at it from a historical perspective similar to I think it

was [External Participant 40] that was talking about, where a site where Triple F was used. So, airports or military facilities are the two big ones right off the bat that if we work at those facilities, we assume that PFAS could be a problem and we address it that way.

The problem with the question about management and disposal of soils with low concentrations of PFOS though is really a matter of what's a low concentration. If you look at the concentrations that are discussed in terms of drinking water standards, they're part per trillion level essentially, from a practical standpoint, it's zero. From soil, you're talking about part per billion range, but there really is no guidance on what's low, what is background, what's acceptable, to say that the site is clean and the soil at the site is able to be reused other places because the PFAS are at X concentration or below some concentration. So we really don't have a definition of what low concentrations of PFAS might be. And that's like I said, that's again uncertainty drives our risk in a lot of cases and that's really the uncertainty of this. So we haven't had, I know [External Participant 42] asks about rejection of soils at landfills. We haven't had any rejections. It's similar to like to what [External Participant 38] was talking about in terms of volume, how much material they'll accept based on their capacity. But they also have, at least the ones that I've discussed this with, have acceptable concentrations and it's usually in the part per billion range for PFAS in the soils. And they'll have a list of PFAS that they will accept at those concentrations. It's more a matter of they want to know what it is you're sending them before they'll accept it. And those limits and those concentrations that they've got are mostly unwritten. You've got to call them and ask them about it before. You can't just look up their permit limits. So again, there is no real concentration limit associated with low concentrations of PFAS.

58:44 [EPA Speaker 1]
Yeah. Yeah, that makes it certainly more challenging and makes everything a unique case essentially. So from maybe a management approaches or technologies perspective, are there folks who can weigh in on any of these kinds of treatment technologies or in situ approaches that could assist in addressing soils containing low concentrations of PFAS? Maybe folks have examples of, of anything like that. We'd love to hear about those.

1:00:05 [External Participant 41]

Hello, [EPA Speaker 1]? This is [External Participant 41]. I'm with WM. And I was going to pause to see if any of the developers or contractors wanted to speak to that. But I just wanted to echo some of the things that [External Participant 37] was indicating about the interactions with the landfills and the disposal operations and the challenges that we know they as our customers would potentially encounter with regard to what are the limits and things of that nature. So certainly we want to be protective of their liability. The long term CERCLA aspects as has been indicated several times throughout this call as well as our

own. And he's accurate in regard to we certainly want to try and serve the customers, the community with providing them with an adequate disposal. And as indicated earlier on the call, certainly if everyone took the most conservative approach from a risk perspective and tried to send it to a CERCLA or I'm sorry, RCRA hazardous waste facilities, we would quickly run out of capacity for things that we think we want to preserve that capacity for that are really more protective. So I just wanted to speak to the fact that, yes, we certainly look at where our outlet is, the leachate as he indicated or others have indicated that we know that we likely have certain concentrations in our leachate. But we have to look at where that leachate is going. And often times we may be discharging to a POTW that in turn may have some liability or regulatory requirements to meet that they'll look back to us. So, we take all of those things into consideration.

You've indicated how state by state and even site by site that that can cause a lot of site specific considerations and challenges because as has been indicated that many of the states are maybe looking to federal guidance here. So I just wanted to echo those remarks and we certainly start with the hierarchy of if we have sites that we know we may not be generating leachate as an example, that may be our priority. Or if we have engineering controls that minimize the leachate or if we can treat the leachate in order to satisfy some of the requirements. Those are the kind of things. But that isn't something that we have currently as the universal approach. So I just wanted to indicate some of these things. I have several others on our team that have been listening in and they want to chime in as well. But just to give you a little bit more understanding and echo some of the concerns that you're hearing from the contractors. We definitely want to make sure that we don't unintentionally increase the concentrations that may be currently already pre-existing. And we consider ourselves certainly a passive receiver of the PFAS concentrated waste because it's been a result of maybe waste that we've accepted for years just at our MSW and subtitle D landfills. And so we don't want to accept something that's going to make those concentrations higher. So that's why some of the things you're hearing are well we call the landfill in that specific landfill may take this concentration or may have a monofill that they will filter capacity. So I just wanted to validate what you're hearing from our perspective that's those are some of the reasons we're trying to be protective.

And then we also are doing a lot of research to determine how much will actually come out in the leachate. And we know that there's not necessarily a one to one that a portion is going to get sequestered in the landfill. So again, we do believe that the subtitle D option is an absolutely protective and appropriate option in many cases. But again, the challenge and the concern is what is a low level soil kind of the topic of this meeting. So just wanted to give you a little bit of our insight and I'd invite anybody else on our team that might want

to add to this, but just again, echoing some of the things that I think you've heard from some of the other speakers.

1:04:47 [EPA Speaker 1]
Yeah, thank you, [External Participant 41]. And if I could just ask a couple follow up questions. So first, are you seeing either just geographic differences or any other kinds of like patterns or trends in which of the locations maybe tend to have higher concentrations or higher levels in leachate or pose more of a concern from your perspective?

1:05:18 [External Participant 41]
Well, I'll start with, I think that there are certainly areas where it's more of a concern, maybe where the manufacturing of PFAS has been concentrated, whether that's in the Great Lakes area, Upper Midwest or New England, where there's more scrutiny as well and where the states may have run ahead of the federal regulations in order to try and set some criteria. And what we've seen is that they will then turn to the potential POTWS since that has the most direct impact on surface water, ultimately drinking water potentially. And that's where we've done most of our work in terms of trying to apply some of the technologies in our case to treat leachate to see if we can get viable feasible options in order to satisfy those. And so again, I, I would say, you know, the upper Midwest, the Great Lakes and probably New England, but we've seen a lot of activity outside of just regulatory in terms of tort claims and things of that nature that are kind of scattered across the country. Hoping this is helpful if I'm answering your question. OK.

1:06:42 [EPA Speaker 1], Yeah. Oh, absolutely. Yeah. Thank you. I mean, it is what I would have expected just given sort of the distribution maps that I've seen of various PFAS levels that people have published as well. So that yeah, that would be in line with my expectation.

And then maybe also more from urban versus rural areas, I guess as of more maybe the more traditional split as well of where you would find different types of

[External Participant 41]
That's right. And I think that there are probably a lot of customers or potential customers that are in this limbo that aren't moving on certain projects. And again, you've heard some of that. So I'm echoing just a little bit of the things that you've likely heard from some of the other attendants today of this uncertainty creates the potential postponement of a lot of projects that they're unclear whether it's reuse, if it's subtitle D, if it's subtitle C, which direction do they need to go to move responsibly on their projects? So.

1:07:59 [EPA Speaker 1]
Yeah, yeah. And sorry, one more question for you. Since you're testing the leachate, are you testing both soils or where the leachate is coming from? And, like trying to estimate what that breakdown is of the percentage of

1:08:32 [External Participant 41]

Yes.

1:08:33 [EPA Speaker 1]

concentration above concentration of the leachate. And do you have a rough estimate of like, Oh yeah, you know, levels are like 10% of what we see in the soils or

1:08:44 [External Participant 41]

We do, we do. So that's it. That's exactly at the heart of our research. And it is something that we were going to volunteer on this call. I know that this may not be the place to get into all of the site specifics, but it's certainly something that we are proposing to share data with the EPA on some of the testing work that we've been doing. And it's as you would imagine, there's some variability in terms of how much, how much leaching comes out, whether it's PFOS, PFOA. And then certainly we've looked at biosolids, we've looked at soils, the things that we would normally receive at our Subtitle D facilities. That's where the focus of our research has been. And I know that we have one of our team mates who happens to have a PhD in PFAS related research is on the line. And again, I know that she's engaged at certain levels in EPA and spoken. And not to put her on the spot, but I think that we would follow up with you and share some of our findings and hopefully it would help a lot of the other attendants as well to, you know, as we all kind of seek to get comfort around what the ultimate responsibility and appropriate levels would be.

1:10:14 [EPA Speaker 1]
Yeah, great. Yes, thank you. Thank you, [External Participant 41]. And definitely if anyone else has comments or [External Participant 41], whether your colleagues want to weigh in as well. We definitely have more time to have more of a dialogue today.

1:10:40 [External Participant 43]
Yeah, I can chime in if, if you guys can hear me OK?

1:10:44 [External Participant 41]

[External Participant 43], we can.

1:10:46 [External Participant 43]

Yes, thank you. And [External Participant 41], thank you for that summary. It was well presented. I'm [External Participant 43]. I work in [External Participant 41's] group and along with [External Participant 44] who's on the phone, as [External Participant 41] was referencing, we've performed over the last several years, some studies on understanding leachability of specifically the two PFAS that are the prime subject today, which is PFOS PFOA. And there's a lot of data gaps to fill and to try to understand those properties

because it's important on a lot of fronts, including the subject today. And so as stated, we have some good information and some of this is out there already and been published and there's others doing this too. And so we're committed to that because we understand the challenges not only for ourselves, but also for those that want to send us their waste, in this case soils and so forth. So we are very open to those kinds of collaborations, and I think we all realize there's data gaps to fill and this is an evolving process. So I'm just echoing a little bit of what [External Participant 41] said. And we're looking forward to getting smarter with others on this and are willing to collaborate on that kind of thing. So I just wanted to add my two cents since I've been directly involved in a lot of this research that [External Participant 41] was referencing. And it's exciting, but it takes time to generate this information and we're making progress, which is good.

1:12:44 [EPA Speaker 1]
Great. Thank you, [External Participant 43].

1:12:48 [External Participant 44]
And this is [External Participant 44]. Can you hear me OK?
1:12:51 [EPA Speaker 1]
Yes, [External Participant 44], go ahead.

1:12:53 [External Participant 44]
So I'm [External Participant 44], I'm on a team with [External Participant 43] and work with [External Participant 41] as well. And just to piggyback on what they've said, a lot of the work that we've done internally to really get a better handle on PFAS sequestration within landfills is predicated on what we know from research that's funded from the federal government too, right. And so it's building on a lot of the concepts that have come out of the federal guided research. The differentiator here though is at WM, I like to say that from a disposal science perspective, we have the world's largest living laboratory for disposal science. That's just the reality. And so in terms of our ability to plug those knowledge gaps, we're certainly in a position where we look forward to collaborating with EPA.

1:13:50 [EPA Speaker 1]
Thank you, [External Participant 44].
1:13:55 [External Participant 41]
Thank you, [EPA Speaker 1]. I don't want to take up too much of the stage from the folks that are really important and that are managing at the sites specifically, but wanted to just again kind of reinforce some of the things that you were hearing from them. So thank you for this opportunity and for having the call.

1:14:12 [EPA Speaker 1]
Great. Thank you, [External Participant 41]. Thanks. Yeah. So I think finally for today's

sessions, we would love to hear from you about any suggestions you might have for us at the EPA, how the agency could reduce uncertainty and facilitate safe development of sites where soils containing low concentrations of PFAS are present. And we certainly heard some of those suggestions throughout our session today. But I would welcome anyone to come on and add anything, any other thoughts that you might have or, or reinforce any points that others might have made about how you see EPA's role in this space and what would be helpful from your perspective. And then just to note that if you have other follow up remarks or comments that you would like to send to us, we have an e-mail box specifically for these engagement sessions and that e-mail is on the screen and we'll put it in the chat as well. That e-mail box will be open until Friday, May 29th and our team here does look at all of the comments received in there. So we're happy to collect any more of your thoughts that you might have potentially after this session or if you have colleagues who missed today's session. We do have our what we were calling our overflow session on the afternoon of May 12th. So anyone want to speak up about other suggestions that you might have for us here at the EPA of how we could facilitate safe development, disposal, reduce uncertainties, anything to add to the thoughts that people have contributed so far today? Looking for any hands raised.

All right, if there are no other comments, then I want to thank you all for participating today, sharing your thoughts and your experiences and examples with us.

We do really appreciate it. And please do feel free to continue to share your remarks and your comments with us via this e-mail box that you see on the screen and that's also in the chat. And with that, thank you very much. I will turn it back over to [EPA Speaker 3].

1:17:41 [EPA Speaker 3]
Thank you, [EPA Speaker 1]. Yes, and this concludes our session today. So have a wonderful rest of your day everybody.

1:17:50 [speaker unknown]
Thank you.

1:17:53 [speaker unknown]
Thank you.

[END OF EDITED TRANSCRIPT OF ZOOM SESSION]

[BEGINNING OF INPUT FROM ZOOM CHAT]

14:00:06 From [EPA Speaker 3]: Welcome! Thanks for joining us. Please get settled; we'll begin shortly.

14:02:57 From Technical Support: [EPA Speaker 6] US EPA : Please feel free to contact [EPA Speaker 6]@epa.gov or [redacted] if you require technical assistance.

14:18:25 From [External Participant 36]: Do you want me to respond to the testing question?

14:24:27 From [External Participant 45]: Will transcriptions be made available?

14:29:14 From [External Participant 42]: For anyone that has had a landfill reject soil with low-level PFAS concentration, can you share what levels you were seeing?

14:32:08 From [EPA Speaker 3]: Replying to "Will transcriptions be made available?"

The event is being recorded for note-taking and quality assurance purposes; these files are not intended for external release or distribution.

14:36:04 From [External Participant 36]: The only feedback we have received from members on this is that the states are divergent, some just PFOA/PFOS some the top 6 or 8 etc.

14:46:51 From [External Participant 42], WM : @[External Participant 38], thanks for sharing

14:47:01 From [External Participant 36]: Replying to "For anyone that has ..."

A member in CA had to ship soil 3 states. We've also heard a few examples of having to go multiple states in the New England states. Do not know the concentrations in those examples.

15:15:20 From Technical Support: [EPA Speaker 6] US EPA : You may continue to share written remarks via email to Low_PFAS_Soil@epa.gov until May 29, 2026.

15:16:57 From [External Participant 40]: Thank you for opportunity

15:17:07 From [External Participant 36]: Thanks again for having this call.

15:17:32 From [External Participant 41]: Thank you for the opportunity

15:17:35 From [External Participant 42], WM : Thanks all.

[END OF INPUT FROM ZOOM CHAT]

Edited Transcript: Engagement Session for **Tribes and Tribal Organizations:** Soil with Low Concentrations of PFAS

This is an edited version of the audio1570898154.m4a file generated from the Engagement Session for Tribes and Tribal Organizations: Soil with Low Concentrations of PFAS held via ZOOM April 30, 2026 from 2:00 PM to approximately 2:30 PM Eastern Daylight Time. Recording began at the beginning of the meeting.

[BEGIN TRANSCRIPT OF ZOOM RECORDED SESSION]

0:10 [EPA Speaker 2]

All right, hello, everyone, and welcome. We're going to go ahead and get started. Thank you for joining us today for this virtual engagement session on soils with low concentrations of PFAS. It's hosted by EPA's Office of Resource Conservation Recovery within the EPA.

My name is [EPA Speaker 2] and I'm going to be serving as your moderator and Technical Support today, and we're excited to have you here representing tribes and tribal nations.

Next slide, please. So EPA is holding a series of engagement sessions with interested organizations on the topic of PFAS impacted soils. Now our main goal is to hear from you and learn about your experiences managing PFAS impacted soils on tribal lands and within your community.

Over the past three days, we've held sessions with States and territories, environmental NGOs and business communities, and we've been able to gain helpful insight into their efforts and challenges of managing PFAS impacted soils.

We're hoping for the same today and thank you for being here. Next slide.

So we just have to go over a few housekeeping items before we begin. Your Zoom controls are on the toolbar along the bottom of your screen. It could also be on the top for some folks. Your toolbar may look a little different than the one on this slide, so if you don't immediately see a feature, try clicking the More button or exploring your toolbar and going through the controls there. So for audio, you can join by computer or phone, and if your computer mic isn't working, you can just click the arrow next to the mute, unmute and select Switch to Phone Audio. And then you'll just follow those prompts. And then to participate, you can use either the chat or raise hand feature.

If you'd like to speak, we'll be monitoring the chat and consolidating remarks and bringing them into the discussion as it allows. And then for any technical issues, please send me a message in the chat or an e-mail and I will help you troubleshoot. I will put my e-mail address in the chat in a few moments. And then we also have closed captions available. You can use the CC Live caption icon within your toolbar and you can turn them on and adjust the settings.

We are recording today's session to document the discussion and accurately capture input. Next slide, please.

The purpose of today's session is to hear about your experiences managing soil that has low levels of PFAS and any challenges or uncertainties that stem from handling such soils.

Please note that this session is not covering topics that relate to cleanup of soils contaminated with PFAS from specific known sources.

We're going to be focusing on PFOA and PFOS. They're two of the most studied PFAS chemicals. Several states have already set default screening levels or cleanup levels for PFOA and PFOS, and those levels can vary by state. And low concentrations of PFAS can be found in places far from known sources. It can travel long distances through the air and settle through rain or dust, which is why it's showing up in remote and non industrial areas. Several northeastern states have conducted statewide background studies showing PFOA PFAS are detected in most surface soils even where no sources have been identified. Next slide, please.

So we've prepared 3 topics to explore with you today and they're shown on this slide. There's no need to remember them. They'll appear later again in the presentation when we're asking for input. Next slide.

We do ask that you please refrain from sharing any confidential business information, private details or any marketing of products or services. We want to keep the dialogue open and appropriate for this forum. Next slide.

So I am now pleased to turn it over to [EPA Speaker 5]. She's the Acting Deputy Office Director in the Office of Resource Conservation and Recovery within the Office of Land and Emergency Management, and she's going to be providing us with some opening remarks.

So thank you.

4:33 [EPA Speaker 5]

Thank you, [EPA Speaker 2]. Good afternoon and welcome to today's engagement session focused on soil with low concentrations of PFAS. We are here to listen and learn. This

administration is committed to tackling PFAS contamination. Within EPA's Office of Land and Emergency Management, we are addressing PFAS by developing methods for identifying PFAS contamination, exploring fate and transport, developing tools for risk assessment, and issuing guidance regarding destruction and disposal technologies. Our team in OLEM is also assessing information on managing PFAS impacted soils at low concentrations with an emphasis on PFOA and PFOS. We recognize these compounds pose unique technical and policy challenges due to their persistence, widespread presence, and decades of use.

We also understand there are tribal specific considerations such as jurisdictional complexity, remoteness, subsistence and cultural resource concerns, and limited disposal options that may affect management decisions.

Some states have issued soil PFAS regulations and guidance and are conducting statewide studies.

We want to understand how those frameworks intersect with tribal priorities, authorities, and on the ground realities.

To better understand the breadth and depth of this topic, we'd like to hear from you about the challenges you are encountering with PFAS impacted soils from your tribal perspective.

The team has prepared several topic areas to guide today's session, including development and redevelopment, soil management, and tribal cultural practices. We encourage you to share your experiences and perspectives.

Thank you again for your time and engagement. I'll turn it back to [EPA Speaker 2].

6:09 [EPA Speaker 2]

Thanks, [EPA Speaker 5]. And now I'm going to turn it over to our facilitator today, [EPA Speaker 1]. She's a manager within the Office of Resource Conservation and Recovery. And [EPA Speaker 1] is going to walk us through these three topics, and we're going to open the floor for your comment. So we do ask when you're called upon, you can just please unmute and if you're comfortable, turn on your camera. And then you can state your name and the Tribe or organization you represent.

And then you can also submit comments in the chat if you would like. Thank you.

6:41 [EPA Speaker 1]

Thank you, [EPA Speaker 2], and thank you, [EPA Speaker 5] for your opening remarks. Thank you everyone for joining us today for this session on low concentration PFAS in soils. Before we dive into our first topic, I would like to remind any press in attendance to please

direct your inquiries to the Office of External Affairs by emailing your questions to press at epa.gov.

So with that, our first topic today is on the development or redevelopment that may be occurring on tribal lands and soil management. And we would really like to hear from you about any concerns you may have about soils containing low concentrations of PFAS affecting, for example, tribal land redevelopment projects.

So again, please raise your hand if you'd like to speak or add your remarks to the chat. I know it's a relatively small group today, so hopefully you'll feel comfortable in providing some comments or thoughts for us.

And we're really interested in hearing about any examples you might have about development or disposal issues related to soils containing PFAS. We're particularly interested in any solutions you may have or options that you are aware of for managing these types of soils on or near tribal lands. Now I'll mention we do also have an e-mail box that we've set up for these engagement sessions, so you can also e-mail us with any additional comments or information and we'll put that e-mail address into the chat as well.

Yes, [External Participant 46], and apologies if I'm mispronouncing anyone's name.

10:05 [External Participant 46]

No worries. I'm sorry. It's taken me a little bit to figure out how to raise my hand. We are doing some cleanup work at a dump site here at the Tribe and very low levels of PFAS were discovered. The Tribe is located in what is now known as Michigan. And so the levels of PFAS are just above the criteria levels for the state. So that impacts clean up a lot because where we're located is about 6 hours away from a landfill that would accept that material. So it takes a clean up that might cost $1,000,000 and moves it up to a clean up that might cost $7,000,000 just because of the transportation. So it's just an example of how some of these lower levels of PFAS are impacting some of the work that we're trying to do.

11:05 [EPA Speaker 1]

And just as a follow up, are you referring to Michigan's soil cleanup levels? Is that the threshold that you're looking at?

11:17 [External Participant 46]

Yes, yes, because this cleanup is taking place not on Trust land, but on fee land.

11:31 [EPA Speaker 1]

Yeah. And that definitely is one of the things that we wanted to explore as well with this group is that since states, not all states, several states though have developed these soil screening and clean up levels for PFOA and PFOS. Just how you're using these levels, how they're impacting you. And it sounds like in this case it just kicks it into a requirement to send it to a hazardous waste landfill. Am I understanding that correctly?

12:09 [External Participant 46]

Yeah, that's correct. It can't go to our local landfill, so it has to go to a hazardous level landfill, which is quite a ways downstate for us. So it kind of makes this particular clean up a little bit out of reach for us.

12:27 [EPA Speaker 1]

Yeah, yeah.

12:30 [External Participant 46]

Financially.

12:31 [EPA Speaker 1]

Yes, that is quite a cost difference. Great. Thank you. Thank you for those comments. We'd love to hear from others as well. Any other examples or any other thoughts?

You know, there are about I think maybe 22 states out there that have soil screening and soil cleanup levels. So we'd love to hear how you're using them or applying them or how that may be impacting activities on your lands, whether cleanup or disposal or construction development types of activities. And I don't know whether any tribe has set their own screening or cleanup level of PFOA or PFOS? We would definitely love to hear about that and learn the kind of information that you might have used to set those levels or whether there is any testing going on for background concentrations. I know certainly in the Northeast a few of the states have done studies across their states or across the New England region on background levels of concentration. So in this case, concentrations and soils that are far from known sources of contamination. If anyone has any thoughts or any comments on that, we would love to hear that as well. I'll just give some time in case people are having trouble finding the raise your hand or mute unmute buttons. And if you're having trouble with the raise your hand feature, you can also just go ahead and try to unmute. Since it's a small group, just unmute and provide your remarks.

All right, well, we can move on to our next topic which is about impacts on tribal cultural practices. And here we would really like to hear about any concerns any of you may have about soils containing low concentrations of PFAS and whether these have impacted tribal

cultural or land use practices. For example, whether lands used for traditional practices have been affected by PFAS in soils. If anybody has any comments or experiences that they would like to share, we would love to hear about those. Are any concerns that you might have that traditional foods or fish or wildlife or plants that your tribe relies on may be affected by PFAS in soils? Any thoughts about that?

Hearing none, we may move to our last topic of this session, which is about tools and technical assistance related to soils with low concentrations of PFAS. And we'd love to hear anyone's thoughts about how EPA could help reduce uncertainty and facilitate safe development on sites containing low concentrations of PFAS in soils. We heard quite a bit from both the state perspective and the session with industry and the business community that the uncertainty of what to do with these soils was certainly driving up costs and concerns about liability out there.

So any thoughts that you might have on how EPA could help reduce that kind of uncertainty, I'd love to hear about that. Or perhaps thoughts about any types of technical assistance or analytical capabilities that would be helpful to tribal programs to better evaluate options for these types of soils. If there are examples of guidance or tools or partnerships that could provide helpful support to tribes, we'd love to hear about that as well. The very quiet group today. Maybe you have any thoughts on types of data or information that might be helpful in making decisions about this type of soil use or reuse or disposal for these types of soils? And there's a comment in the chat asking whether there's been much sampling work on tribal lands to determine if there is a problem? Is there anyone who can provide any answers, any comments on that? Yes, [External Participant 46].

22:06 [External Participant 46]

I work more in the Brownfields area and we don't typically sample for PFAS except for in the the site that I was referring to earlier because it was an old dump site. But so I can only speak for Bay Mills Indian community, which is who I work for that often we're not sampling for that in our work. And also I do think that technical assistance would be helpful and guidance like this as I was talking about our project here where we have low levels of PFAS, but high enough to be beyond those criteria. And if guidance for how to manage those materials that maybe is more financially available or not so costly for us would be helpful if there are other options out there for us rather than trucking all these tons of materials six hours away to a hazardous material landfill.

23:31 [EPA Speaker 1]

Yeah, that sounds great. And when you say technical assistance, what kinds of examples are you thinking of?

23:42 [External Participant 46]

I was afraid you were going to ask me that question. I don't know exactly what

23:46 [EPA Speaker 1]

That's OK. You don't have to have examples.

23:50 [External Participant 46]

I'm not exactly sure. Maybe folks with expertise in this area providing guidance to us and our contractor about what other options might be available to us for disposal or remediation and concerns over public health. And at what level is this a big public health concern for the community? Sometimes we're looking at maybe this is just too expensive to be able to manage at this point. And what are the implications of that? Guidance along those lines.

24:41 [EPA Speaker 1]

Yeah, no, those are great points. Yeah. Any other thoughts from people about any sampling that's been conducted? I'm guessing that most of the other sampling would be under similar conditions that there was a cleanup and there's a state maybe cleanup level. And so that's why testing may have occurred versus other kinds of sampling. And if there's anything else that you might think are hype, what your most important priorities are related to PFAS that your tribe would like EPA to understand, please let us know that as well. We'd be really interested in hearing about what those priorities might be for you.

It's another comment. Oh, I'm sorry. You can't unmute. All right, [EPA Speaker 7], I see your comment.

26:50 [EPA Speaker 2]

Oh, sorry, [EPA Speaker 7]. I can unmute you if you'd like.

27:01 [EPA Speaker 1]

Yeah, [EPA Speaker 2], why don't you do that and then [EPA Speaker 7] can come off mute and.

27:22 [EPA Speaker 1]

I don't know if that's working.

27:25 [EPA Speaker 2]

Yeah, it is not working. Very strange.

27:31 [EPA Speaker 1]

Oh, looks like maybe now.

27:36 [EPA Speaker 2]

All right. Yes, now it's showing. [EPA Speaker 7], hopefully.

27:46 [EPA Speaker 1]

[EPA Speaker 7], you should be unmuted now if you want to add your comment.

28:04 [EPA Speaker 1]

All right, maybe it's not working on his end, but sounds like there are some other issues. So, but thank you, [EPA Speaker 7] for your comment that you were saying you're the EPA tribal solid waste liaison in Region 9 working with Arizona tribes. And currently there aren't efforts to determine PFAS problems on tribal lands there. But yeah, thank you for asking about that. It would be great to, yeah, get some more information about many concerns, experiences that they may have there. So thank you. And if there are no other. Oh, [External Participant 47]. Yes.

29:05 [External Participant 47]

Yes, hello. Hi. Yeah, My name is [External Participant 47] and I work with the National Tribal Water Council. And I just want to provide a comment that I think many of the tribes across the nation have not done much sampling because of the cost of testing. I think that's the huge challenge for them is just coming up with the cost of it. And therefore they're not able to test readily like they wish to. Because I know that I've heard, when we've heard many concerns already by many tribes saying, yeah, we do want to test our soils, our vegetation, medicinal plants, wildlife, the various other sources that they have. But the thing is they usually end up coming into the cost issue. And then they're trying to look for sources, whether they're federal funds. I did try to ask our EPA project officer on the Office of Water for some information regarding available funding for PFAS testing, but I haven't got information back yet. But I know that I think she's working on it. But I do know that there definitely is an interest in it, but they just don't have the funds to do it. Which is the biggest. Yeah, that's the biggest, I think, challenge they have.

And then some of them have done it, but some of them have worked with universities, they've partnered with other, whether nonprofit organizations or like I said, universities to do the testing. That's been helpful to some tribes because since they don't have the funds, they normally go out to with other agencies or organizations to do the sampling in

conjunction with them so that they could get the information they need. So those are the things I'm aware of.

31:26 [EPA Speaker 1]

Yeah, that's really interesting. And [External Participant 46]'s chimed in in the chat as well that the costs are quite prohibitive and that is limiting the understanding what the levels are and whether in soils or vegetation or other resources. So that's a very good point as well. Thank you for that.

Any other comments that people would like to provide now while we have the Zoom open and please raise your hand or come off mute to provide any remarks or put anything in the chat on your thoughts on this topic.

Otherwise, I want to thank you all for participating today and sharing your experiences and again, if you have any additional comments on this topic, please share those using the e-mail box that's on the screen. We'll put it in the chat as well. We have that e-mail box set up specifically for these engagement sessions and we are monitoring what comes in through that and adding that to our collected comments. That e-mail will be available through May 29th since we have two more sessions coming up next week with local governments, and then the following week is what we've been calling our overflow session. So for anyone who wasn't able to attend the sessions this week or would like to hear from some of the other participants, that will be May 12th. So otherwise, thank you also to everyone who has already submitted comments through this e-mail box and we look forward to continuing to engage with you all on this topic. So thank you all, and I'll turn it back over to [EPA Speaker 2] to close us out.

34:11 [EPA Speaker 2]

Thank you everyone. I appreciate you taking your time today to be with us. And as [EPA Speaker 1] said, if there are any comments, please send them to that mailbox by May 29th. And with that, I hope you have a lovely afternoon and the rest of your day. Thank you.

[END OF EDITED TRANSCRIPT OF ZOOM SESSION]

[BEGINNING OF INPUT FROM ZOOM CHAT]

14:08:11 From [EPA Speaker 2]: If you are having any technical issues you may contact me through the chat or email me at [EPA Speaker 2]@epa.gov

14:21:36 From [EPA Speaker 7]: I am wondering if there has been much sampling work on tribal lands to determine if there is a problem.

14:26:41 From [EPA Speaker 7]: I am unable to unmute. I am an EPA Tribal solid waste liaison in Region 9 working mainly with Arizona Tribes. I don't know of any effort to determine PFAS problems in Arizona Tribal Lands. But I will start asking about it.

14:28:09 From [EPA Speaker 7]: I am having probles with my system. I don't have any sound.

14:28:18 From [EPA Speaker 2]: Reacted to "I am having probles with my system. I don't have any sound." with a thumbs up emoji

14:28:27 From [EPA Speaker 7]: Spelling problems too

14:30:16 From [External Participant 46]: yes, that's true, sampling is cost prohibitive.

14:33:58 From [EPA Speaker 2]: Low_PFAS_Soil@epa.gov

14:34:04 From [External Participant 46]: Thank you

[END OF INPUT FROM ZOOM CHAT]

Edited Transcript: Engagement Session for **Local Governments**: Soil with Low Concentrations of PFAS

This is an edited version of the audio1425426874.m4a file generated from the Engagement Session for Local Governments: Soil with Low Concentrations of PFAS held via ZOOM May 6, 2026 from 2:00 PM to approximately 2:30 PM Eastern Daylight Time.

Recording began at the beginning of the meeting.

[BEGIN EDITED TRANSCRIPT OF ZOOM RECORDED SESSION]

0:00 [EPA Speaker 3]
Hello everyone, this is the virtual engagement sessions on soil with low concentration of PFAS. We will begin shortly.

So good afternoon, everyone, and welcome to today's virtual engagement session on soil with low concentration of PFAS hosted by the US Environmental Protection Agency.

My name is [EPA Speaker 3] with EPA's Office of Resource Conservation and Recovery, and I'll be serving as your moderator. We are excited to be here today with participants representing local government.

EPA is holding a series of engagement sessions with interested organizations on the topic of PFAS impacted soils. Our main goal is to hear from you and learn about your experience managing soils with low concentrations of PFAS in your jurisdictions. Last week, we held

four sessions with state and territories, environmental NGOs, industry and tribal nations and gained helpful insights into their efforts and the challenges of managing PFAS impacted soils. And we are hoping for the same outcome today. So thank you for being here.

Before we dive into the exciting part, a few quick housekeeping items. Your Zoom controls are in the bottom toolbar along the bottom of your screen. Your toolbar may look a little different than the one you see on the slide. If you don't immediately see a feature, try clicking the More button or exploring the toolbar at the bottom of your screen. Most of the controls can be found there. You can join by computer or phone. If your computer mic isn't working, click the arrow next to Mute, Unmute and select Switch to Phone Audio and then follow the prompts. Closed captions are available. Use the CC Live Transcript icon on the bottom toolbar to turn them on or adjust settings. To share comments verbally, please use the Hand Raise feature. You can also submit written comments in the chat. We will monitor the chat, consolidate remarks, and bring them into the discussion as time allows. For any technical issues, please message us in the chat or e-mail [EPA Speaker 2] who is supporting today's session. We will troubleshoot and keep things running smoothly. [EPA Speaker 2]'s e-mail will show up in the chat shortly. And today's session is also being recorded to document the discussion and captured accurately your input.

As I've mentioned earlier, the purpose of today's session is to hear about your experiences managing soil with low concentration of PFAS and any challenges or uncertainties that stem from handling such soil. We would like to focus today's session on 2 specific PFAS chemicals, PFOA, perfluorooctanoic acid and PFOS, perfluoroctane sulfonic acid. PFOA and PFOS are ubiquitous, and low concentrations show up even in areas far from known PFAS sources. This observation has been also made by several northeastern states that have conducted statewide background studies demonstrating that PFOA and PFOS have been detected in most surface soils, even in area with no identified sources. One of the key fate and transport pathways contributing to PFAS buildup in surface soils include atmospheric transport and deposition, wet and dry, and the transformation of PFAS precursors into terminal PFAS such as PFOA and PFOS.

Also noting that several states have set up default soil screening or clean up concentration levels for both PFOA and PFOS and levels vary by state.

So we have prepared 3 topics to explore with you today shown on this slide, and no need to memorize them. They will appear again later in the presentation when we ask for your input.

And a final note, please refrain from sharing any confidential business information, private details or any marketing of products or services. We want to keep the dialogue open and appropriate for this forum.

And now it is my pleasure to introduce [EPA Speaker 5], Acting Deputy Office Director in the Office of Resource Conservation Recovery, Office of Land and Emergency Management, who will offer opening remarks.

[EPA Speaker 5], please take it away.

5:26 [EPA Speaker 5]
Thank you, [EPA Speaker 3]. Hello everyone, and thank you for joining today's engagement session focused on soil with low concentrations of PFAS. This administration is committed to tackling PFAS contamination. Within EPA's Office of Land and Emergency Management, we are addressing PFAS by developing methods for identifying PFAS contamination, exploring fate and transport, developing tools for risk assessment, and issuing guidance regarding destruction and disposal technologies. Our team in OLEM is also looking into available information related to the management of soil with low concentrations of certain PFAS chemicals, specifically the two chemistries PFOA and PFOS. We recognize that both chemistries present unique technical and policy challenges due to their widespread presence, persistent nature, and decades of extensive use in manufacturing. This has created uncertainty about appropriate management approaches and raise liability considerations for some groups. Some states have taken the lead by issuing soil PFAS regulations and guidance and conducting statewide studies to map PFOA and PFOS distribution, including in remote areas.

The team has prepared several topic areas to guide this session, including development and redevelopment and soil management. We encourage you to share your experiences and perspectives. Thank you again for your time and engagement. I'll turn it back to you, [EPA Speaker 3].

6:46 [EPA Speaker 3]
Thank you, [EPA Speaker 5]. And I will now turn it over to our facilitator, [EPA Speaker 1], a manager in the Office of Resource Conservation Recovery. As you can see, our office is quite popular. [EPA Speaker 1] will walk us through the three topics and we'll open the floor for your comments. When called on, please unmute and if you are comfortable, turn on your camera. State your name and the organization you represent. You can also submit your comments in the chat. [EPA Speaker 1], the floor is yours.

7:15 [EPA Speaker 1]
Thank you, [EPA Speaker 3], and thank you, [EPA Speaker 5] for your opening remarks and thank you to everyone for joining us today. Before we dive into our first topic, I would like to

remind any press in attendance to please direct your inquiries to the Office of External Affairs by emailing your questions to press at epa.gov.

All right. Let's get started on our first topic. We would like to hear from you, but any challenges that your, your county, your city, your jurisdiction may have faced or may be facing in managing soils containing low concentrations of PFAS or options that may be available in your jurisdiction for the disposal of soil containing these types of low concentrations of PFAS. We heard during our sessions last week with the States and territories and then also with the business community representatives about some landfills that were not accepting soils with these kinds of low concentration PFAS.

So perhaps someone could speak to examples of conditions of acceptance of these types of soils at landfills, for example, accepting soils with precursors that could degrade to PFOS or PFOA or landfill capacity, things like that.

We'd love to hear more about your challenges that you are facing.

So again, please raise your hand if you'd like to speak or add your remarks into the chat. Or perhaps any management approaches or technologies that that you may be using that is assisting in addressing these kinds of soils with PFAS, any kinds of in situ approaches or new technologies maybe at some of your landfills or in other instances. We'd love to hear any examples. That would be very helpful for our understanding the scope of the problem and how people are dealing with it.

Other comments that we heard in some of our other sessions also pertain to insurance and obtaining insurance and people dealing with liability.

I see [External Participant 48]'s comment about what we consider low level versus high concentrations. In this instance, the way that we've been trying to frame low concentrations is more analogous maybe to background concentrations.

So when we were looking at what some of the states were doing in terms of developing soil screening and soil cleanup levels, some of the particularly Northeastern states have done and are still conducting some pretty extensive sampling across their states in locations that are far from any known sources of PFAS contamination and determining what those levels of PFAS in soils are. And so they're finding PFAS there at essentially background types of levels, acknowledging that obviously it isn't anthropogenic chemicals. So there isn't a natural background of PFAS, but just in terms of PFAS that as [EPA Speaker 3] had mentioned earlier, are likely showing up there through wet or dry atmospheric deposition. And so we're not defining them currently at a specific threshold, but are trying to kind of explore what people are dealing with in terms of those types of background levels of PFAS

contamination in soils. Does that help, [External Participant 48]? At least for now maybe that helps. OK.

And one of the other comments that we had heard in some of the previous sessions is that because of the volume of soil that may be disposed of or moved that then it's these low concentrations still are accumulating or depending on what it is that needs to be done is a much higher cost. And we had one example from our tribal session where they were doing a cleanup and the levels that they were finding were just above the state's, I believe, cleanup level just by a little bit. And that kicked their disposal costs. And I forget, I think it was like a factor of 6 times higher because then they needed to go to a hazardous waste landfill versus their other landfill disposal options that they had. So it's those types of comments and conversations have been really helpful in the previous sessions.

So we'd love to hear from anyone here in local and county jurisdictions, what your experiences may be. Any other challenges either at landfills or other businesses that you've heard from that they're facing difficulties obtaining insurance due to insurers concerns about soils containing low concentrations of PFAS. We heard that in in our session, definitely with the business community as well. So perhaps someone has examples that you'd like to share.

We do also have an e-mail box that we have set up for these engagement sessions. You can e-mail us with any other comments or information that you might have that you might rather put into an e-mail to us and we'll put that e-mail into the chat later on as well.

We have a small but quiet group today. All right. I'm not seeing any hands up or any other comments. Oh, there's a question in the chat from [External Participant 49]. Do local governments have guidance documents related to city projects requiring fill material screening for soil PFAS? I don't know if anyone is available to answer that question.

Right. Maybe we'll move to our second topic. So for this topic, oops, we'll go back one. There we go. For this topic, we're interested in how concerns over low concentrations of PFAS may have affected land redevelopment projects in your area. We'd love to hear from you about any specific practices that are required to manage these types of soils. If there are no requirements, perhaps there are examples of issues, whether during construction or disposal that may have come up in this context that you could share and, and potentially any solutions that that you see or that you've heard about.

And thank you, [EPA Speaker 3]. [EPA Speaker 3] just put the e-mail address into the chat. We're going to leave that open until the end of this month, May 29th or the last business day of this month. And our team over here in OLEM is monitoring that e-mail box and we're going to collect comments and try our best to answer questions. So you can use that for any remarks that you would like to share there as well.

And maybe just to also reiterate [External Participant 49]'s question, this was something that we would really like to know about as well as, obviously there are states that have soil screening and clean up levels for PFOA and PFOS. And we'd love to hear how your city or county maybe using those values or whether there are other values that you're using, you're relying on and how those might be applied, if anyone has any thoughts about that.

All right, not seeing any hands or anything else in the chat, we'll cruise right on to our last topic for today. So for this one, we're interested in understanding whether you're encountering PFAS in soils and under what circumstances you might be testing for PFAS or specifically PFOA and PFOS. It did seem from our previous discussions that certainly in states that have soil screening and clean up values there was more testing going on, particularly if a property was being sold. And a lot of that was for any kind of liability and concerns, wanting to know what the new owner was getting into. So in some circumstances that was a reason to do testing. Other examples were to understand where they could send soils given some restrictions that some landfills may have or capacity issues for accepting these types of soils. So we'd love to hear from anyone who might have other examples, where you're encountering PFAS and under what circumstances you may be testing. Please feel free to raise your hand or come off of mute to make any comments or add comments into the chat. Maybe your city or county is having interactions with the state about any potential background levels or the background testing that they're doing. We'd love to hear more about that as well. Or maybe for projects that are happening in your jurisdiction, construction or redevelopment projects, whether you've heard about any impacts to project timelines or costs or potentially halting development considerations or halting a project entirely. We certainly heard in our business community session about examples where timelines were extended and certainly it increased costs. If anybody has any examples that they'd like to share, we'd love to hear about those as well. And similarly, any concerns that you've heard about liability because PFAS were discovered on the property even at these more background or low levels or difficulties with insurance and that impeding or hindering redevelopment or just interest in redevelopment in general.

The last thought that we had for you all for today to try to stimulate some discussion was just to hear from you about any suggestions that you might have for us at the EPA about how the agency could reduce uncertainty and facilitate the safe development of sites where soils containing low concentrations of PFAS are present. So any suggestions from you all, we would certainly welcome your thoughts on that. And otherwise we do have one more session next week on May 12th, which is open to any of the five stakeholder communities that we were trying to have these engagement sessions with. So that's after the afternoon of May 12th, same 2:00 PM Eastern. And otherwise, thank you all for

participating today. Again, if you have any comments on any of these topics, you can still share those in our e-mail box that's set up for these sessions. As I mentioned before, that e-mail box will be available through May 29th and [EPA Speaker 3] has put that into the chat. So thank you to anyone who has already submitted comments that way those have been very helpful so far in informing us about the challenges and opportunities and the thoughts that folks have shared about suggestions for us here at EPA and on dealing with these types of soils with low concentrations of PFAS. So if there are no other comments or anything else in the chat, then thank you very much and we will close today's session.

[END OF EDITED TRANSCRIPT OF ZOOM SESSION]

[BEGINNING OF INPUT FROM ZOOM CHAT]

14:01:32 From [EPA Speaker 2]: Welcome! Thanks for joining us. Please get settled; we'll begin shortly.

14:04:07 From [EPA Speaker 2]: If you have any technical difficulties, please send a message using the Chat function or email me at [EPA Speaker 2]@epa.gov

14:11:44 From [External Participant 48], Los Angeles County Sanitation Districts : It would be helpful to know what EPA considers "low-level" concentrations versus "high" concentrations. How are you defining "low-level?"

14:14:01 From [External Participant 48], Los Angeles County Sanitation Districts : Sure

14:17:39 From [External Participant 49]: Do local governments have guidance documents related to city projects requiring fill material? Screening soil for PFAS?

14:18:53 From [EPA Speaker 3]: You can also share written remarks via email to Low_PFAS_Soil@epa.gov until May 29, 2026.

[END OF INPUT FROM ZOOM CHAT]

Edited Transcript: Engagement Session for **Additional/Overflow**: Soil with Low Concentrations of PFAS

This is an edited version of the audio1787369038.m4a file generated from the Additional Engagement Session: Soil with Low Concentrations of PFAS

held via ZOOM May 12, 2026 from 2:00 PM to 4:00 PM Eastern Daylight Time. Recording began at the beginning of the meeting.

[BEGIN EDITED TRANSCRIPT OF ZOOM RECORDED SESSION]

0:06 [EPA Speaker 3]

All right. Good afternoon everyone. It is two-oh-one Eastern Time. We will go ahead and start.

Good afternoon and welcome to today's virtual engagement session on soil with low concentration of PFAS hosted by the US Environmental Protection Agency. My name is [EPA Speaker 3] with EPA's Office of Resource Conservation Recovery and I will be serving as your moderator. EPA has been holding a series of engagement sessions with interested organizations on the topic of PFAS impacted soil and today is our final session. Our main goal is to hear from you and learn about your experience managing soils with low concentration of PFAS. Over the past two weeks, we have conducted 5 sessions with States and territories, environmental NGOs, industry, tribal nations and local governments and have gained valuable insight into their efforts and the challenges of managing PFAS impacted soils. Today's Sessions is open to anyone who could not attend the previous sessions, as well as to those who attended earlier sessions and would like to provide additional comments.

So before we dive in, just a few housekeeping notes. Your Zoom controls are in the toolbar along the bottom of your screen. Your toolbar may look a little different than the one you see on the slide. If you don't immediately see a feature, try click on the More button or exploring the toolbar at the bottom of your screen. Most of the controls can be found there. You can join by computer or phone. If your computer mic isn't working, click the arrow next to Mute, Unmute and select Switch to Phone Audio, then follow the prompts. Closed captions are available. Use the CC Live Transcript icon on the bottom toolbar to turn them on or adjust settings. To share comments verbally, please use their Hand Raise feature. You can also submit written comments in the chat. We will monitor the chat and consolidate remarks and bring them into the discussion as time allows. For any technical issues, please message us in the chat or e-mail [EPA Speaker 4] who is supporting today's session. We'll address them promptly. I'll post her e-mail in the chat shortly. And today's session is being recorded to document the discussion and accurately capture input.

As I mentioned earlier, the purpose of today's session is to hear about your experiences managing soil with low concentration of PFAS and any challenges or uncertainties that stem from handling such soil. We would like to focus the discussion on 2 specific PFAS chemicals, PFOA, perfluorooctanoic acid and PFOS, perfluorooctane sulfonic acid. PFOA and PFOS are ubiquitous and low concentration show up even areas far from known PFAS

sources. This observation has been made by several northeastern states that have conducted statewide background studies demonstrating that PFOA and PFOS have been detected in most surface soils, even in areas with no identified sources. One of the key fate and transport pathways contributing to PFAS buildup in surface soils includes atmospheric transport and deposition, wet and dry, and the transformation of PFAS precursors into terminal PFAS such as PFOA and PFOS. Also noting that several states have set defaults or a screening or clean up concentration levels for both PFOA and PFOS and levels vary by state.

So for today, we have prepared 5 topics that have generated the most interest in the previous sessions and are relevant to most groups engaged on these issues. No need to memorize them. They will appear again later in the presentation where we ask for your input. We will start in the order shown on the slide. However, we know that some participants may join later, so we can revisit any of these topics during today's session. I'll post updates in the chat about every 30 minutes to give an overview of what have been covered so far.

And a final note, please refrain from sharing any confidential business information, private details or any marketing of products or services. We want to keep the dialogue open and appropriate for this forum.

And now it's my pleasure to introduce [EPA Speaker 8], Principal Deputy Assistant Administrator in the Office of Land and Emergency Management, who will offer opening remarks.

Please, [EPA Speaker 8], take it away.

4:54 [EPA Speaker 8]
Thanks. Appreciate everybody participating today. This administration is committed to tackling the PFAS problem. Within our area of EPA in OLEM, we're looking at developing methods for identifying the PFAS, exploring fate and transport, developing the tools for the risk assessment and issuing guidance regarding destruction and disposal guidance. But most importantly is providing a way through so people can, whether you come across PFAS, figure out what you do with it. That is something we've heard consistent across from whether it's communities, developers, tribes, states, that there's a real need for that. And these sessions are a critical part of our effort to understand what is currently out there, the challenges people are facing and ideas you may have for us of how we can help go forward.

You've heard already that some states are already out there with some guidance, some rules about how to deal with this. Our current focus is on the low concentration soils so that the developers are running into as they dig. Others may run into it as well. So that's a key aspect. The tribes have their specific considerations and concerns with regards to you

get jurisdictional issues, the remoteness, the ability to maintain their cultural resources, limited disposal options that both they and others also face. So, to truly understand the breadth and depth of these issues, we've held these engagement sessions. We have learned a lot already, some of which we are confirming what we thought was already out there. Also starting to get some ideas about how we can move forward. So the team's prepared a number of different areas for you to talk about, provide us some input. We encourage you to do so and recognize that we are appreciative of your time and engagement on this and we'll be open for further dialogue as we go on through this process. So with that, I'll turn it back over to the team to proceed with the session. Thanks.

7:08 [EPA Speaker 3]
Thank you, [EPA Speaker 8]. All right, so now I will turn it over to our facilitator, [EPA Speaker 1], a manager in the Office of Resource Conservation Recovery. [EPA Speaker 1] will walk us through the topics and we'll open the floor for comments. When called on, please unmute and if you're comfortable, turn on your camera. State your name and the organization represent. You can also submit comments in the chat. [EPA Speaker 1], the floor is yours.

7:37 [EPA Speaker 1]
Thank you, [EPA Speaker 3], and thank you, [EPA Speaker 8] for your opening remarks. And thank you, everyone, for joining us today. Before we dive into our first topic, I would like to remind any press in attendance to please direct your inquiries to the Office of External Affairs by emailing your questions to press at epa.gov. All right. And with that, as [EPA Speaker 3] mentioned, we have 5 topics today. You see them on your screen. We can take any topic in any order that people are interested in. I will start with the first one. We have a few subtopics for each of these where we'd love to hear input, get your thoughts. And so (excuse me) first we'll start with maybe some thoughts that you have on background PFAS concentrations or soil screening and clean up levels.

As [EPA Speaker 3] mentioned, we are defining background PFOA and PFOS concentrations as those kinds of low level concentrations in the soil that are found far from any known sources. And some states use this concentration either as the lowest cleanup level or as a substitute for screening or cleanup level. And so to start our session, we would love to hear from anyone about your considerations or approaches to soil background concentrations. For example, we are interested in hearing about any background studies that might be planned in your state or your jurisdiction and anything that you might be able to share about the methods that are being used. In previous sessions, we certainly heard from some of the Northeastern states about some of their statewide sampling to determine background values and other studies that were planned. So if anyone would like to comment on that or add your thoughts, your experiences, that would be great. As [EPA

Speaker 3] mentioned, please raise your hand if you would like to speak. And you can also add your remarks in the chat where folks can see them and I can read those remarks as well.

For anyone who either is having trouble coming off of mute or doesn't feel comfortable speaking in this group, but we'd love to hear from anyone who would like to contribute to this topic.

Please just use the raise your hand feature down at the bottom. Yes, I see a hand. [External Participant 50].

11:04 [External Participant 50]
Hi, hopefully folks can hear me.

11:07 [EPA Speaker 1]
Yes, we can hear you.

11:08 [External Participant 50]
Wonderful. My name is [External Participant 50]. I'm with the Minnesota Pollution Control Agency. Just wanted to chime in and I apologize if other MPCA folks made it to the previous conversation for states. But our agency has been granted some money from our state's Environmental and Natural Resources Trust Fund to do a study with USGS looking at ambient background PFAS concentrations, specifically in areas across the state where there's no known or expected contribution, whether that's a facility, an industrial or other facility. We ended up looking at public lands, so mostly state and some federal, I think. But the results from that study won't be available for another year and a half or so probably. So it's underway and I just wanted to share that.

12:13 [EPA Speaker 1]
And that's statewide across Minnesota, just as long as it's far from known sources.

12:20 [External Participant 50]
Yeah, that's correct. They used GIS to try to find different parts of the state in different ecoregions just to get representative soils and things like that. So, yeah.

12:36 [EPA Speaker 1]

Excellent. And are they in just surface soils or are they going deeper, doing any depth profiles or just the

12:48 [External Participant 50]

I believe it's just surface soil, is my understanding.

12:53 [EPA Speaker 1]
Excellent. That'll be really interesting. We would certainly love to hear more about it as that is underway and certainly once the results are in. That's great. Thank you.

13:18 [EPA Speaker 1]
Yes, [External Participant 51].

13:23 [External Participant 51]
[External Participant 51], thank you. So I don't have information to give you. I have a question. So I thought I might as well do it now. Can you lay out what your work product at the end of this process may be because right now you're in engagement with different sectors, you have 5 questions. There are a lot of issues, of course. I assume you're working on a guidance, but what kind of a guidance are you thinking about? Again, I know that's not a commitment, and what's your time frame?

14:03 [EPA Speaker 1]
Yeah, those are excellent questions that I know are on most people's minds for sure. So we are mostly gathering information at the moment and then trying to put that together to really advance our understanding of what the concerns are, what some of the different approaches are that States and other organizations are taking to address this issue. And then really we're developing options internally that will be first discussed within the Office of Land and Emergency Management to really figure out which options may be the best ones to pursue what might be a viable path. And then, once we have that input back, which hopefully would be in the next few months, to inform our team here, then we would be able to move forward. And maybe have something a bit more concrete to really answer that question of whether it would be something like a guidance or a method or things like that. Right now, really all of the options are still on the table. And part of it is under discussion within the team and

15:44 [External Participant 51]

Got it. Thank you.
15:46 [EPA Speaker 1]
But we would be also interested in knowing from your perspective, what you would be most interested in seeing. That is part of what we would like to hear about too, is, what is it that the people out here would like to have EPA do? What is it that's within our purview?

16:13 [External Participant 51]
Well, I'm happy to answer my personal opinion on that.

16:16 [EPA Speaker 1]
We'd love to hear it.

16:17 [External Participant 51]
Well, you are well aware that because of the liability issues, people are frozen and very afraid. And I understand that this session is gathering information about soils with no known source. But the issue goes beyond that. There's also extremely low levels in material that's been beneficially reused or beneficially used. So that's another issue. And I think whatever you do on this would impact the issue of beneficial use because whatever signals you send about, OK, here are levels that we just really aren't concerned about. And whether that's background with no known source or whether that's beneficial use, for EPA to send that signal out there, I think would be quite a relief. It would fill a gap. States are filling gaps. They are developing guidance on their own particularly on beneficial use, we're not concerned at all level being about 20 parts per billion. Whether your we're not concerned at all level for redevelopment, as a brownfields issue, which it seems what this might be targeted towards. Again, whatever you say for that is going to have broad implications. And so I think you want to think broadly about that. I would hope.

And I guess the other thing I was just thinking about before this was, everybody hates them, but you do have the PCB disposal guidelines. And you have a number, 10 is the trigger for regulatory, but not 10. 50 is the trigger for regulatory. But you have 10 is kind of a clean up thing and it's parts per million by the way, not billion.

18:22 [EPA Speaker 1]
Yes.

18:23 [External Participant 51]
And then you have the alternative to do risk based approaches if that number is higher than what people want to do. Again, those are regs that everybody loves to hate. But nonetheless, it's something that's out there and it's regulatory, it's notice and comment. OLEM has the disposal program. It didn't go back to OCSPP, did it? I don't think so. You guys still have PCB disposal, don't you?

18:52 [EPA Speaker 1]
Yes, we do. PCBs will be fully under our office.

18:58 [External Participant 51]
Yes, yeah. Something that just has a number that says OK, we're not concerned. We as the agency aren't concerned. You shouldn't be either. And you know OK, get it that that's a low number and if people want to go higher, fine, then you could have an off ramp. But again, this is guidance, not reg. So you can really do whatever you want, but I think that the important thing is to provide information to the public, to redevelopers, to people who want to do beneficial use so that there's some level of comfort that the agency isn't concerned. And we know that it's not going to be a perfect number. It's not going to be perfectly risk

based. But as I said before, states are jumping in already on the beneficial use with tiered approaches. That seems like a reasonable risk management approach, which is something that OLEM does, you don't eliminate risk, you just don't do that. You manage risk and a risk management approach and making sure that that's the mindset, which presumably OLEM would have anyway would be very helpful too.

But primarily it's getting some kind of signal out there about what's not a concern to unfreeze people and that's unfreezing them, whether it's on the brownfields redevelopment side or whether it's on the beneficial use side.

20:31 [EPA Speaker 1]
Yeah, thank you. Those are great comments and they certainly echo some of the comments that we heard also in previous sessions. And yes, the team has definitely been looking at what has been done with PCBs historically and how that has come about. Obviously it's not a perfect analog, but there's some lessons certainly to be learned. Yeah, sorry. Go ahead.

21:05 [External Participant 51]

And as you proceed, since you've had your four other sessions, if you could share with us some things you've already learned that would be wonderful.

21:12 [EPA Speaker 1]
Yeah. Absolutely. They were interesting sessions. And we have definitely heard about the liability concerns, cost concerns, how people are adapting to the fact that they are finding and testing for PFAS, so for example, redesigning projects. And we also heard about the disposal issues, whether you have to go to a hazardous waste landfill or not, at what threshold, because of state regulations that you're moving to a hazardous waste landfill and what that does to project costs. So we've certainly heard about those kinds of issues.

22:25 [External Participant 51]
Right, and whatever you say here, people will infer that that's the disposal guidance said high levels should go be managed in more protective ways, i.e. hazardous waste landfills or deep well injection or incineration. OK, but you never said what a high level was. And so that leaves people kind of thinking, Oh my God. And of course you don't have the capacity. You don't have the subtitle C capacity. I don't even think you have the subtitle D capacity. So there are issues.

23:00 [EPA Speaker 1]
Yeah. And as you had brought up earlier, we also definitely heard that more clarity about the definition would be good truly defining what a low concentration PFAS is. And yeah, and then right, your issues of capacity, we've also heard about that.

23:31 [External Participant 51]
Thank you.

23:32 [EPA Speaker 1]
Thank you. All right, we have a few messages in the chat that are coming in. So there's a question whether there's been any work to determine background concentrations on Arizona tribal lands. So if anyone is on the call who can answer that question, that would be great. I personally don't know of any studies that are going on, but that doesn't mean that there aren't any. If anyone here knows that would be a great question to answer. So thank you, [EPA Speaker 7] for that question.

And then there's another comment from [External Participant 52]: Could also be helpful for clean import of fill. We have developers stating that the providers of fill are not willing to test for PFAS due to what may happen if it is found and is not related to this site. And [External Participant 52], if you wouldn't mind coming on just to expand on that maybe of what it is that people have experienced of what might happen, that would be great as well.

24:59 [External Participant 52]
So I'm a regulator in California where we have a redevelopment site and due to sea level rise, they need to bring a lot of imported fill to the site. It was a former power plant site. There was some PFAS releases at the site and in one of the operable units, a different operable unit where they're going to develop. They did do some PFAS testing and didn't find anything that was indicative of the release. It looked to be more ambient. But in asking, knowing that PFAS is a contaminant of concern for the site, they're going to be bringing in fill, we said, hey, are you going to test clean import of fill for PFAS? And they're like, we cannot find providers of fill that are willing to just test for PFAS prior to bringing it onto the site because their concern is what if they find it? They didn't use maybe PFAS and wherever the fill's coming from the borrow site or the mine or wherever? So they find this PFAS, then what? And then it could render their fill either not usable. And it's a struggle that that we're having, especially when we have those requirements. And I did see my supervisor's hand go up too. [External Participant 53]. So I didn't know if he wanted to expand on that 'cause I saw his hand go away. So I'm gonna also punt it over to [External Participant 53].

26:25 [EPA Speaker 1]
Perfect. Yes, [External Participant 53].

26:31 [External Participant 53]
Hey there. Yes, thanks. My name is [External Participant 53]. I'm with the Department of Toxic Substances Control, their site mitigation restoration program here in California. And we are having some problems trying to find appropriate fill for sites, whether it's on site or from off site providers because of the low screening levels that are related to PFAS and soil.

Trying to meet that standard has been a challenge. So, that's definitely something that we're buttressing up against. And you know, as [External Participant 52] mentioned, especially with the commercial suppliers, they're somewhat reticent to even screen or sample for it because they don't want to carry that liability that their offsite fill could be potentially impacted by PFAS and therefore affect their business. So we're trying to find those appropriate sources because obviously we don't want to introduce PFAS contamination to sites on with ongoing PFAS investigations, right. So that is one piece.

But I also did want to speak to the background study activities. DTSC is collaborating with some environmental consultants here in the state to do a pilot study focused in Los Angeles County, around 136 square miles of land area per sample for a total of 30 samples collected at the surface, zero to 6 inches, using a grid approach with random selected locations per 200 square mile grid. And they're going to collect samples in state or municipal parks, undisturbed areas such as forest, shrubland, grasslands, etcetera, and building lawns. And then of course, they're going to implement a 500 meter buffer zone around parcels associated with PFAS operation sources or release areas. We want to select. But that's pretty much all the details I have on that at this stage. The idea is to develop background threshold values for PFAS and soil for LA County based on the results. And we're kind of eagerly anticipating the fully developed work plan so that we can kind of get out in the field and get that data.

28:55 [EPA Speaker 1]
Oh, that's super interesting. Thank you. And so just a quick question on the 500 meter buffer around it. So the assumption is that beyond 500 meters then you would again be essentially a background level, is that right?

29:12 [External Participant 53]
Yeah. The idea is we want to really try to understand the ambient presence of PFAS in soil and the 500 meter buffer zone I think was applied to other background studies that have occurred in the Northeast to really try to minimize the impacts from potential source areas or discharge of PFAS to the environment, to really try to understand what is the ambient concentrations for PFAS in California and for this study specifically Los Angeles County. But we are talking with other consulting companies as well to try to expand this activity into other parts of California because, you know, California shows a lot of heterogeneity in terms of what the impacts could be. So. And we don't have much good data around ambient impacts of PFAS for the state. So we're trying to develop that understanding to better approach our site mitigation efforts within DTSC.

30:15 [EPA Speaker 1]
And when do you think the results of your study for LA County will be ready?

30:24 [External Participant 53]
That's hard to say at this stage. You know, working with the consulting company, they're taking on a majority of the efforts. I've been kind of knocking at the door to say hey, when are things coming? But we're just in a wait and see mode. And I would anticipate the work plan to at least come out by this summer so that they can get out into the field. And then once the work plan comes, I would imagine that the activities would happen pretty quickly after that. But they really want to make sure they have a good strategy in place.

30:58 [EPA Speaker 1]
Yeah, that's great. Well, we definitely would love to hear about the progress on that and, and the results for sure as well. That's great. That's excellent to hear about. Thank you.

And for any tribes that are joining us today, there was a question about any study to do background concentration work on Arizona tribal lands. And then more generally for any tribes who are joining, we'd love to also better understand whether you're using state screening or clean up levels for PFOA and PFOS and how you might be applying those.

And anyone who's maybe joining from the business community, we also would love to hear your perspective on the application of the soil clean up levels in your industry, whether these are helpful or create barriers or challenges, for example. Or if there are organizations that work in multiple locations or nationally, we'd love to understand what the implications of any regional differences are in terms of concerns or approaches in addressing low concentrations of PFAS and soil.

We'd love to understand how state by state differences and clean up or screening levels may be reflected in your work or input that you're getting from your members of your organization, for example.

And again, please use the raise your hand feature that you can find in the bottom of the toolbar. Come off of mute and let us know what your thoughts are. Yes, [External Participant 54].

34:01 [External Participant 54]

I need to. There we go. Can you hear me?

34:04 [EPA Speaker 1]
Yes, we can hear you.

34:05 [External Participant 54]

So I think sort of a simple question I would have that you've mentioned it a couple times and I understand that there isn't a specific value, but does EPA have a concept of what it considers a low concentration to be at this point? There certainly have been a number of global and regional studies on the matter. I'd be curious if there's anything you'd speak to that.

34:30 [EPA Speaker 1]
We currently don't have a value in mind. We're actually really interested in hearing from others of what you would consider a value of low concentration PFAS. We've definitely been looking across the various studies that have been done up in the Northeast and kind of just gathering those data. But we don't have a set number in mind as of right now, but we'd be happy to take input on that for sure.

35:10 [External Participant 54]
Well, certainly, this is a personal opinion, but many of these studies have been focused on, really rural pristine area. And that's certainly valuable. That's a very valuable touch point. But an important point to consider in this is that a lot of the work we do predicting brownfields are not in pristine areas. And so keeping in mind that the upper range of those concentrations that we're seeing in pristine areas, I think we need to not be throwing that out as outliers or necessarily cutting this down too much.

Because if we can see 5, 6, 7, 8 parts per billion in a couple soil samples in rural areas for PFOS and PFOA, yes, that may not be the average, but it is something that we're legitimately detecting out there.

I would just maybe vocalize that that's an important thing to keep in mind that we're seeing numbers like that in pristine areas. We're talking about delineating in urban areas or reworked areas, keeping that in mind that we're not chasing shadows as it were.

36:21 [EPA Speaker 1]
Yeah, excellent. That's a great point. And you said you were working in brownfields?

36:30 [External Participant 54]
I'm an environmental consultant.

36:33 [EPA Speaker 1]
And so for any of the work that you're doing, are you also testing for four PFAS as part of Brownfields redevelopment projects or this is just mostly kind of what you're seeing in those areas

36:51 [External Participant 54]

Working across programs, across a host of States, and things like that. The question of when is something sufficiently delineated is a real key issue for us. Oh, and I recognize [External Participant 2].

37:09 [EPA Speaker 1]
Great. Thank you. All right, I'll go to [External Participant 2]. You've got your hand raised. Thank you, [External Participant 54], for those comments.

37:16 [External Participant 2]
Yeah, I just wanted to mention I'm New York State Department of Environmental Conservation. We did do a rural background study, exactly what he was describing and sticking to pristine areas and we got some results very similar to the other Northeast states where you know, 95th percentile was 3-point-O for PFOS and 1.5 for PFOA. We had detections of PFOS in like 97% of the samples, and we got that question, OK, what's background in urban areas? And so we have hundreds of brownfield sites in our New York City area with PFAS data for them. Did an analysis there and the distribution looked almost identical to the rural background. Similar concentrations, similar distribution in terms of how many were at the various concentrations. So it really didn't look like our background was significantly different in our urban areas. I will say that in the groundwater, the background in urban areas is significantly elevated. So we haven't figured out why we have a significant amount of groundwater contamination in those areas, but it's not from this real background PFAS concentrations. So. And I

38:47 [EPA Speaker 1]
That's really interesting. Yeah. Is that a published study?

38:53 [External Participant 2]

The New York City one? No, that was a back of the napkin thing. So

39:00 [EPA Speaker 1]
Yeah.

39:01 [External Participant 2]

We can

39:02 [EPA Speaker 1]

Super interesting though.

39:03 [External Participant 2]
Yeah.

39:05 [EPA Speaker 1]
We would love to yeah, we'd love to know more about that. I know that people are very

interested in that and in whether it's differences or the consistency across everything from urban to rural to more pristine areas as well. So if you know, if there's any, anything either that you have posted or potentially if it's data that you can share with us or feel comfortable sharing with us for any input into our kind of analysis, that would be great too.

39:42 [External Participant 2]
Well, I'll see about writing that up.

39:46 [EPA Speaker 1]
In everyone's spare time.

39:48 [External Participant 2]

Yeah, exactly.

39:51 [EPA Speaker 1]
Thank you, [External Participant 2]. All right, [External Participant 55], I see your hand up.

39:59 [External Participant 55]
Can you hear me, [EPA Speaker 1]?

40:00 [EPA Speaker 1]
I sure can.

40:01 [External Participant 55]
Good to see you, [EPA Speaker 1].

40:02 [EPA Speaker 1]

It's good to see you. It's been a long time.

40:04 [External Participant 55]
Yes, and good to see [External Participant 2] and [External Participant 51] and other people willing to stand up and speak at this event. And I'm sure you're hearing some things over and over again. But back to something that you mentioned earlier, before [External Participant 2] stood up on the background stuff was back to soils and moving soils.

I work for a company called Clean Earth and we move a lot of soil in the Northeast and when appropriate, we clean it up. But we work with contractors, they dig foundations. We have 100 yards, 1000 yards of soil and we got to move it. We move it to our beneficial use sites. And that can be a variety of circumstances. But what we tend to do though, think about the Northeast and the square miles we have up there. Quite often we obtain a soil in one state and we take it to another. And so there's inconsistencies between the States and how they regulate soils. What background do I have to test before I take it out of the ground? Do I have to test before I use it? What is clean or what is not of concern? And so I'm sure you've been getting around, you've heard this many times, but that is really a big

problem because what you're running into is right people. It's not just they don't want to test. They're afraid to even bid on a job. And if they do bid on a job, they're going to bid in such a way as to you're going to get the highest price. You're not going to get a low reasonable price. Because the uncertainties associated about where I might pick up the soil, where my back end beneficial use site is going to require me to do, all of that. If something changes or I didn't manage it and I didn't know all the rules entirely, I'm going to overprice it. And so it's going to impact. It's not just the people who are directly involved here in the work of managing environmental cleanups. It's the rest of the economy and the contractors, the people who build and manage buildings, et cetera. Whatever you're gonna build, you're gonna move soil, you're gonna run into this problem. So that trying to create some consistency here is gonna be very helpful to just creating an efficient process for continuing development, especially in the Northeast.

42:55 [EPA Speaker 1]
Yes, you're right. We've definitely heard some of that. We'd love to hear also more about your thoughts on the best approach for something like that to provide consistency. What is it that EPA really should be considering or doing that would provide that? I think someone else earlier, maybe [External Participant 51] said it, that level of comfort to the industry and to people who are dealing with these issues.

43:25 [External Participant 55]
Well, I always agree with [External Participant 51]. So I'm sure she's smiling, but that she had some good comments. And that's really what it is. As I talk to people, I have 50 states plus that all have to get comfortable with how they're going to manage soil within their boundaries. It would be great if they all did it the same way, but regardless, they all have to set that lower level, in which there's no action required. And being an engineer and somebody who spent a lot of time talking to folks in IRIS program, I'd like it to be risk based as opposed to something that's just background. Though to reiterate what [External Participant 51] said, what is that comfort level? That doesn't sound very risk based, but that's what we truly need. If you want to break the logjam here is facilitate that. And that's going to be critically important. And I do like the PCB model where you have, and I'm not fully validating how the rules that are around how PCBs are managed, but you have a 50 part per million and right above that it's a hazardous waste. It goes one direction below that. It's not so much it still has to get cleaned up in most states, but there's still regulations around it, but it's not necessarily a Part B process.

That way of thinking and some recommendations from I think the feds would be very helpful to allow the states to move forward. I would also say that having better clarity on what the definition of PFAS is would be very helpful as well. We're primarily talking about soils and how you measure PFAS in a soil and what those analytes are. But when we start

thinking about managing the soils and cleaning up these soils and treating these soils to down to your comfort level, we start talking about a whole another set of potential PFAS that aren't necessarily found in your original sample. And that gets to air emissions and such. And I think clearly defining what a PFAS really is, what that group is, does it include, for example, does it include F gases? Things like that are going to be very important to allow this whole supply chain from the developer to the entity that actually treats the soil to the entity that reuses the soil to be able to do it in an efficient way and certainly in a way that minimizes liability for everybody.

46:28 [EPA Speaker 1]
Great. Thank you, [External Participant 55].

46:32 [External Participant 55]

All right, Thank you.

46:34 [EPA Speaker 1]
Excellent. And [External Participant 51], I see.

46:35 [External Participant 51]
Yeah, I just had a quick response to what's been said. So while in general, I always hugely supportive of risk based approaches, here I think it has to be risk management as well as risk avoidance. I mean we saw what happened with the biosolids guidance. If you just take the 2024 human health risk assessments and just plug in some numbers and those were just assumptions, you just take that and the real numbers based on those risk assessments, you'd be well below background, you'd be creating enormous disposal issues. You would make things far worse. And so OLEM does this, RCRA does this, you have lots of other considerations. You're not just going to take a single risk number from the risk assessment and say, OK, that's it. That's what we're going to go for. So that was yeah. So sorry, [External Participant 55], I wasn't 100% agreeing with you. Even though risk based approaches sound great. We saw what happened with proposed human health water quality criteria, with the biosolids. You need to step back and think, OK, what's our risk management goals here and what's really our focus and what's really something that is of concern. So. Instead of chasing zero.

48:19 [External Participant 55]

I think we agree.

48:24 [EPA Speaker 1]
Thank you. Yes, and [External Participant 53] added to this conversation, there's a need to balance risk based approaches with implementability considerations. So I think that's echoing the sentiments of the conversation. And I know in our conversation, we've moved a

little bit between topics one and touched a little bit on two in terms of costs and liabilities as well. And certainly if there are others who you know would like to talk a little bit more, provide some comments about kind of the long term liability concerns given certainly the CERCLA hazardous substances listing. We've heard previously about those increased costs of projects or complete reconsiderations because of that uncertainty associated with managing or disposing of these types of soils. If there are others who maybe have some additional examples that they would like to provide, we'd love to hear about that too. Maybe people have other examples of when they're testing for PFAS, what those circumstances are. We've heard about testing soils in advance of acquiring a property for development or redevelopment and testing before any construction begins to know what to do with those soils or potentially redesign a project. If others have any more examples to add to that, we'd love to hear about those as well.

I see a question from [External Participant 56]. Has anyone actually pursuing reimbursement from responsible parties? And [External Participant 56], is this a question more broadly for the group or are you specifically asking that of us at EPA?

51:18 [External Participant 56]

Just both and there's, you know a lot of conversation if our responsible party has been identified and we're hearing guidance that it would be wise to start tracking any of your remediation costs pertaining to PFAS. But I haven't identified anybody or heard of anyone actually pursuing reimbursement. Yeah. So it's just a general blanket question to everybody. Has anybody done it successfully or are they working through the process?

51:54 [EPA Speaker 1]
Thank you. That's a question open for the group. I don't know if any samples personally, but if anyone has anything to add to that, please feel free to raise your hand or add comments in the chat of course as well.

And we certainly are interested in better understanding how those concerns about liability or perhaps there are concerns about getting insurance for any projects, how that may be impacting redevelopment or decisions to pursue certain projects or not to pursue certain projects. If people have examples of that, that'd be great to add to this conversation.

Yes, [External Participant 2].

53:20 [External Participant 2]
Yeah, I believe most states are working on lawsuits to recover costs from the chemical manufacturers. I believe New Jersey has received a settlement payment for that. I don't know if any other states have. And in terms of individual sites, we certainly have had some responsible parties step up. Some of the fabric coating sites we've had. And New York has a

liability relief for municipalities that have used firefighting foam at part 139 airports, things like that, where they were using the firefighting foam as it was intended. The state has all passed liability relief for them. So the normal state Superfund program, it will be responsible for cleaning those up to some degree. So the liability is going to be a patchwork of things.

54:30 [EPA Speaker 1]
Great, thank you. Are there other states that have similar examples as New York or maybe people have had other experiences with this?

All right, we can also move on to our next topic on landfill disposal of soils. We'd love to hear about options that you have or you've used or you see in your jurisdiction for disposal of soils containing low concentrations of PFAS. I see one comment from [External Participant 57].

[External Participant 57], this one, she says she's in Washington state. And then the biggest issue is a facility with a high amount of development but the absence of a TSCA listing and a level for hazardous waste classification. The disposal facilities are making policy decisions on what they will or will not accept at their disposal facilities. And most out west are saying that any detection of PFAS requires Subtitle C hazardous waste disposal, which is not feasible. So she's asking for hazardous waste criteria. We have definitely heard some of those same sentiments in other areas about disposal facilities that are making their own decisions, setting their own criteria for what they will and will not accept. So that definitely confirms a few other comments that we've had in previous sessions. Are there other thoughts or examples that people have that they might want to add? Any other comments that people might have about some of the criteria or conditions for acceptance of these types of soils? Perhaps someone can speak to some of the reasons that maybe some of these facilities are setting those conditions.

We heard in previous sessions that some of the facilities are maybe not setting it by concentration levels, but by volume like setting volume limits or physically setting aside areas in their landfill annually for acceptance of certain soils. Yes, [External Participant 54].

58:47 [External Participant 54]

I mean, it's almost obvious, I think, but just, I mean, landfill space is limited. I don't see a lot of new landfills getting permits now. And so with that in mind, I think we need to be considering, if these soils truly are low concentration, why are we landfilling it? If these concentrations are on par again with soils that we're encountering or seeing in the broader environment, I'm not quite sure why we should be landfilling it. And so certainly some common sense and practicality has got to govern this.

59:33 [EPA Speaker 1]
Yeah, right. Thanks. Thanks, [External Participant 54]. Those are definitely also comments and thoughts that we've heard from others. So thank you. Yes, [External Participant 2].

59:47 [External Participant 2]
Yeah, I was just going to say that, yeah, we, we got heard the message that no, none of the landfills in New York State were accepting soil with PFAS. We actually made a comprehensive survey and we did find that some were accepting soil that had PFAS in it. And it makes sense it they already have. You have substantial PFAS in their leachate. It's not like this is the only PFAS that's going into their landfill. So at some point they should have confidence that they can accept moderate to low level PFAS in soil without degrading what they have in their leachate and so on. But I agree that it's the challenge is the regulations and if we can identify, just define what is low level PFAS, what can go to a municipal landfill as opposed to a hazardous waste landfill, that would be incredibly helpful. But I don't think anybody has tackled that yet. And the same is true with water. We're sending development water from our remediation sites out as hazardous waste and we should be able to treat that easily with carbon and that's not available commercially. It's frustrating.

1:01:10 [EPA Speaker 1]
Yeah. Yeah, we definitely had heard some examples of, the landfills are testing leachate to meet requirements downstream, like treatment requirements that are from off their site. And that was kind of backing up what was influencing their decision making. And since we sort of started to touch a little bit on management approaches as well, maybe we'll move on to that fourth topic.

So if anyone has examples of specific practices that are required in your areas to manage soils containing low concentrations of PFAS or if there are no requirements, any other examples of issues that may have come up?

Or even better, if anyone has other solutions to contribute, we would love to hear about that as well. Actually, [External Participant 2], if I can put you on the spot for a question that came in from our team. If you could speak a little bit more to maybe what was going on with PFAS in the leachate and what the landfills were doing in terms of testing or accepting soils at different levels that wouldn't increase the overall PFAS in the leachate, if you could just elaborate on some of that.

1:03:39 [External Participant 2]
Yeah, I really can't. I'm in with the division of remediation. So I'm not a landfill guy. We talked with some landfills about potentially using an SPLP or some other analysis to say, hey, as long as it's not going to degrade your leachate, you know, can you accept it? And that didn't go anywhere. We have tested the leachate from I think all the landfills in New

York and we are seeing significant levels of PFAS in that. And that's another whole can of worms because most of that leachate was going to POTWS where it was basically being diluted as opposed to treated. So there's a lot of concern about management of leachate from your solid waste landfills now, so this is just going to get more and more complicated. And the call I was on just before this was on ultra short chain PFAS if you want to get into another whole can of worms. So, yeah, I can mention problems, but we don't have solutions. I think every state is handling that leachate question a little differently. I know Vermont was one of the first states that had their landfill installing foam fractionation to remove a significant amount of the PFAS from their leachate prior to disposal. So. And New York has a proposal to require landfills to treat leachate too. And that's one of the approaches you could have. Rather than limiting what's going into the landfill, you could manage the PFAS coming into the leachate as a result of that stuff coming in.

But I agree that it's not having a number to evaluate the soil to say, yeah, this is OK to go into a solid waste landfill means that a lot of people are assuming that number to be zero. We set a clean up number very early and it released it as a guidance value without a lot of backup. And people were just so happy to have any number to work with rather than zero. We didn't get any pushback. So I think that's a very telling thing that it would be a benefit to developers, to people who are trying to do work out there to provide a number so that they can have some clarity, have some confidence that they can move forward.

1:06:20 [EPA Speaker 1]
Great. Thank you, [External Participant 2]. And yeah, I see [External Participant 57

]'s comment as well saying that she's desperate to stop sending soil 10 parts per trillion to hazardous waste facility landfill. So there's criteria that would be good. And [External Participant 57], I don't know if you feel comfortable coming off of mute and, and maybe sharing a little bit more about your experience or any thoughts that you have about thresholds or, or add that to the chat as well. That'd be great. There are other examples that people have about other management approaches or in situ treatments, whether as part of landfill operations or other experiences, other examples. We'd love to hear about that as well. Yes, [External Participant 50].

1:08:07 [External Participant 50]
Yeah, thank you. I'll just reiterate, to help illustrate the point. In Minnesota, as far as I know, we don't have any landfills that have any soft or hard numbers that they're using. Lots of conversations with our Department of Transportation about soils that they're pulling related to road projects and things and consequences of individual landfilling facilities turning that away. But we're mostly in conversation with our solid waste folks regarding bio solids, which is obviously the focus of this conversation. But I think in some ways the

approaches may be similar in terms of working with facilities in Minnesota. We're starting to issue permits that have leachate related PFAS requirements that's monitoring treatment land application of aerial spraying, that kind of thing. So similarly treating more on the back end at least for now until we have a better idea. But that's kind of where at least for the conversations that I've been and that's where the focus has been.

1:09:25 [EPA Speaker 1]
And then are there quantitative levels for set in the permits and for biosolids in Minnesota?

1:09:37 [External Participant 50]
No, I don't believe so. Not for biosolids specifically. For the leachate I think there are action thresholds that depend on our state derived health based values and they are quite low.

1:09:56 [EPA Speaker 1]
Like parts per trillion?

1:09:58 [External Participant 50]
Yes. Yeah.

1:10:02 [EPA Speaker 1]

Yeah, excellent. Thanks for that. I know earlier [External Participant 51] had mentioned beneficial uses. So we'd love to hear more examples that people might have about soils that are being either managed outside or fall under the state's beneficial use program. You know, maybe you've got different perspectives to contribute on those long term safeguards that we should consider or just other considerations with respect to that. Some states are using the beneficial use programs more in conjunction with this than others might be. We'd just be interested in hearing about those differences in your perspectives as well. Yeah, [External Participant 51].

1:11:33 [External Participant 51]

Well, I don't know if there are any Wisconsin folks on, but Wisconsin did just pass legislation amending their spill act. But it was among the other things they did was require permitting for, again, this is for PFAS, but as also setting 20 parts per billion as a level below which the state wasn't concerned and wasn't going to, you know, require permitting. And it was teed off of their guidance that they had put out there, which was a biosolids guidance. But the legislation is much broader. It has to do with essentially beneficial use, fertilizer, soil amendments, those kinds of issues and set it. But in legislation they have set a number, which again, I think you've heard on the call, people are saying, please give me a number, but don't give us zero and don't give us 4 points per quadrillion or whatever you might go to under the 2024 human health risk assessments because that's not even realistic. I mean, that's insane. So, so anyway. States have, through various processes,

been establishing numbers. I'm sure you know that both Maryland and I forget the other state I remember there was Virginia or not, but they recently passed legislation also using tiered approach. Not what I don't, I haven't looked at the legislation. So I don't know if it's specific to biosolids or if it's broader like Wisconsin and has to do with all kinds of land application. But nonetheless states are coming out and acting and providing a number to deal with the concerns, the issues that not having a number creates that you've heard about today.

1:13:36 [EPA Speaker 1]
Yeah, excellent. Yeah, that's really helpful. Thank you for that [External Participant 51]. And that actually also goes very nicely into the last topic that we have on the slides for today. And just maybe hearing more when we've touched on this a bit over the course of the last 75 minutes or so. But we really would like to hear from folks about your thoughts on what EPA can do to help reduce uncertainty and facilitate safe development on sites where low concentrations of PFAS are present. As we've heard today as well, states are setting their own limits, but that's leading to inconsistencies from state to state and that heterogeneous approach of different limits and different guidances in different places. And so we'd love to hear about other thoughts or you're supporting what previous speakers have said or maybe you have some other examples to add that would be certainly helpful to inform us and our approach to next steps after these engagement sessions. Yes, [External Participant 53].

1:15:54 [External Participant 53]
Yes, thank you. So one of the things that we're seeing in California because we have a lot of federal facilities here that have been doing a lot of ongoing work around PFAS and PFAS site investigations. And we've seen data from a number of different types of sites across these federal facilities. And one of the things that we are seeing that when there's been an actual discharge or release that the data collected is often like orders of magnitude above the EPA regional screening levels. So that's kind of a bit of a qualitative assessment that we're considering when we're trying to determine has a discharge occurred. And does the responsible party really have to step up to ensure that management because we're seeing detections in every single site. So it's not like we're getting non detects obviously, but we do see sites where the numbers that we're getting back are more kind of hovering around those screening levels.

And that we kind of are again at this stage of our understanding somewhat qualitatively considering as being more reflective of ambient conditions and not necessarily an indicator of discharge, which again the data is very clear for those sites where there's been known A triple F releases or other types of activities, chrome plating, et cetera, where we see, you know that those data really kind of orders of magnitude above those screening levels. So

that's kind of one way that we're somehow negotiating and approaching those types of sites relative to the data collected.

1:17:43 [EPA Speaker 1]
That's great. Yeah, that makes a lot of sense. That seems like a very sensible approach. And it's nice to see that level of differentiation actually in the data. I wonder if other states or other jurisdictions are seeing similar things of, that the difference between known discharges and known sites versus what would be more considered ambient is also as clear as that or are there other people finding more of a gradient and less of that clear delineation? Just need more data from more places, I guess.

1:19:13 [External Participant 53]
Yeah. And I acknowledge that we also need more data too. You know, we're still working off of a very limited understanding of the data and the conditions. So I would imagine we're going to see exceptions to even this kind of eyeball test as it were. So we're not just kind of considering this as part of our process just a line of evidence that we're kind of considering in these site valuations.

1:19:38 [EPA Speaker 1]
Yeah, no, that's, that's great. That makes a lot of sense. And for any tribal members that may be with us today, we'd love to hear about any concerns that that you might have or have heard about. In terms of these low concentration PFAS in soils that have impacted tribal cultural practices or maybe present in traditional foods or you know, fish, wildlife, plants, anything like that. We'd love to hear about any of those, those concerns or examples that that you might have there. Yes. [EPA Speaker 7].

1:20:44 [EPA Speaker 7]

Yes, I'm a tribal solid waste liaison for EPA Region 9 and I work mainly with Arizona tribes. And I did put something in the last comment. I attended the last meeting as well.

1:20:56 [EPA Speaker 1]
Oh, excellent.

1:21:00 [EPA Speaker 7]
Part of the tribal session.

1:21:01 [EPA Speaker 1]
Yes.

1:21:02 [EPA Speaker 7]
My feeling on it is that there just hasn't been enough work to determine that there is an issue on tribal lands, at least in this area of low concentration in soils. So it's one of those

things if it hasn't been looked at and we say it's a problem. And so I think I find that to be problematic.

1:21:27 [EPA Speaker 1]

Yeah. Have you heard of any sampling, any studies on background levels

1:21:39 [EPA Speaker 7]

I don't know. I don't know of any. And I'll back this up too, in that until recently I had a side job where I was connected with a lab that studied PFAS at the University of Arizona. And so I was kind of adjacent. My work in that lab wasn't directly on PFAS, but many of the researchers were working on PFAS and so mainly in water contamination. But I never, you know, it never crossed me in that concern. I just feel like it hasn't been investigated.

1:22:17 [EPA Speaker 1]
Yeah. Yeah. So that's another data gap to note for us. Excellent. Thank you, [EPA Speaker 7].

Another aspect of this would also be with filling some of these, these data gaps. But understanding, I guess particularly for tribes, the type of technical assistance or data or analytical capabilities (excuse me) that would be helpful for the tribal programs to better evaluate what may or may not be going on tribal land. So I guess if, if others, if anyone has thoughts about that, types of guidance or tools or partnerships that would be helpful to support tribes, we definitely would be interested in in understanding that as well. [EPA Speaker 7], I don't know if you had any other thoughts on that.

1:23:51 [EPA Speaker 7]
Yes, I do. I do. If you're interested. I did find, I don't know who put it out. I did find an interactive map that shows PFAS concentrations adjacent to tribal land. I could put that in the chat if you'd like me to do that.

1:24:05 [EPA Speaker 1]
Oh, that'd be great. Yeah.

1:24:07 [EPA Speaker 7]
I'll do that.

1:24:08 [EPA Speaker 1]
Excellent. Thank you. It looks like that is getting lots of interest. Great. I see that link. Perfect. Thank you. And we have just a little bit over 30 minutes left in our Zoom session for today. If anyone has other comments that they would like to contribute on really any of our topics, any of these five topics that you see on the screen or maybe add to any comments that you've heard today, please feel free to raise your hand or contribute in the chat. Certainly appreciate hearing from you. Yes, [External Participant 54

], I see your hand.

1:25:38 [External Participant 54]
I was kind of intrigued by something, I think it was [External Participant 53] said. Apologies if I'm butchering your last name. I'm sure I am. But mentioned, I think if I heard correctly, was talking about, sort of delineating significant sources from background. And I think I, if I heard correctly basically saying that once we got to concentrations around maybe the RSLs things kind of hovered there, but that wasn't necessarily indicative of a source. I was just wondering if you might be willing to clarify or repeat. I found it interesting, but I'm not sure I fully understood.

1:26:13 [External Participant 53]
Yeah, no problem, [External Participant 54]. And yeah, it's [External Participant 53], but no worries.

1:26:17 [External Participant 54]

Apologies.

1:26:18 [External Participant 53]
Yeah, no worries. So here in DTSC in California, we have a lot of military bases and they've been doing ongoing PFAS investigations for a few years now and they're in the process of really starting to get significant data collection across the different installations. And we're seeing a lot of different types of data. And for some sites we never really get non detects. Some areas they've sampled that don't have a clear source area for a PFAS discharge, but they still collected data. And in those cases in soil, the data would often hover around the regional screening levels for soil for the individual contaminants. Compared to other installations where there was a known discharge of say A triple F or there was a chrome plating operation or some type of other activity that could present a source for PFAS, we're seeing that data really orders of magnitude above those RSLs, above those screening levels in soil. So we're kind of taking that at a big picture level right now to try to reconcile what it really means, because we want to be able to make an argument around, did a discharge occur? And if a discharge did occur, then what are your actions to mitigate the risk inherent associated with it. We have a much harder time creating that argument when we can't really pinpoint a discharge mechanism from the responsible party for PFAS to the environment. So right now as we sit here today, the data seems to kind of exhibit that kind of a trend where there's not a clear source area or not a clear discharge area for PFAS. The numbers seem to oscillate hover around the screening levels relative to again, when they know it's been discharged or know it's been released because of say a crash or some other operation. Those numbers tend to be significantly elevated above the RSL.

1:28:37 [External Participant 54]
Thanks so much. Really appreciate that.

1:28:39 [External Participant 53]

You got it.

1:28:57 [EPA Speaker 1]
I can see a question in the chat about the recording of this session. And we are recording the session so that we can faithfully take in all the information and check our notes against what was said. But the intent was not to make it make these recordings available to the public. But if you have questions, please feel free to contact us. And we actually do have an e-mail address specifically for these sessions that we'll put up, we can add into the chat. And feel free to ask us any questions or any clarifications that you might have about any of the topics from the session. But the recording was really meant for internal use for us to make sure that we got everyone's comments and thoughts recorded accurately. But as I said, if you have questions or wanted additional information on something, please use that e-mail box and [EPA Speaker 3] can put that e-mail into the chat as well. That e-mail will be open till the end of this month. We'll keep collecting comments and any thoughts that you might have that come to you after this session, for example. And [EPA Speaker 3] can add that e-mail into the chat.

Are there other thoughts or comments that anyone would like to add on any of the topics that we discussed today? And you can e-mail us up until May 29th, which is the last Friday of this month. And we'll keep collecting comments there. Several of you've already contributed comments that way. So we want to thank those of you who have.

I see another question in the chat. Are there scenarios or examples in states where background levels are higher than a state soil clean up number? That's a great question, [External Participant 58]. And I wonder if there are any state representatives still on who might be able to answer that question. I know we've had New York, Minnesota and California. Any of you all have thoughts on that or perhaps if there are other states or have any examples? It's a great question.

1:33:20 [External Participant 53]

I mean, I could chime in a little bit again here. But, while we don't have established background or ambient conditions for PFAS, we often do see for almost nearly a majority of the data collected, we do see already exceedances of the soil screening level for specifically PFOA, right due to its incredibly low screening level based on its carcinogenicity. So I would imagine that that is going to probably be a likely outcome, at least with respect to PFOA. I can't really speak on the others at this stage, but based on

some of the preliminary data that we've received, I would imagine that the screening level for PFOA may be below some ambient conditions.

1:34:23 [EPA Speaker 1]
Yeah, that's really interesting. Do you have a sense of what the consequences of that would be in California or what would be done given that finding?

1:34:39 [External Participant 53]

Yeah. Typically when we have a screening level that's below ambient or background for a contaminant, usually our clean up operations focus on cleaning up to that ambient level in lieu of the screening level.

1:34:54 [EPA Speaker 1]
Right. So similar to what the Superfund program does.

1:34:57 [External Participant 53]

Precisely.

1:34:58 [EPA Speaker 1]
Yeah. Yeah. Great. Thank you, [External Participant 53]. Any other any other thoughts? I see [External Participant 50] added she'll have a better answer for Minnesota in a year or so after the background study is done. Excellent. Oh, and [External Participant 58] added another question. Are there screening levels for PFOA that are lower for direct contact or leaching or impact to groundwater? [External Participant 53], I don't know if you want to answer that as well.

1:35:46 [External Participant 53]
Yes, I would imagine, you know, I mean you can develop exposure specific screening levels based on the tox criteria. I don't know what they would be for like a dermal direct contact exposure or you know what would be considered a number that would be protective of groundwater and how that really relates off off the top of my head. But I would imagine that taking out the ingestion exposure pathway in the development of the screening level would elevate it somewhat. I don't have that number off the top of my head, but I think the ingestion pathway is driving the current screening level as it stands here today.

1:36:38 [EPA Speaker 1]
Great. Thank you. [External Participant 58], does that answer your questions? Hopefully it does. Yes. All right, Great. That's great. Excellent. And again, if anyone has any other comments or thoughts to add for any of these topics, whether it's on the background concentrations, which we've had a pretty robust discussion about today, or any other examples or thoughts on the costs and liabilities associated with moving these types of soils around with development or disposal, or any other thoughts about landfills and

accepting these soils and their criteria or the management of these kinds of soils management approaches. Other examples of technologies or in situ treatments that you have come across or are using or any other comments that any thoughts or takeaways that you might have for us at EPA of what we could do to reduce uncertainty out there that exists in handling these types of soils with low concentrations of PFAS and facilitate continued uses and safe development of sites. We'd certainly love to hear any of your thoughts, any additional comments.

1:38:55 [External Participant 53]
Just to follow up on the last question because I looked it up. It's about a two orders of magnitude difference in the screening level for the dermal contact exposure pathway compared to ingestion.

1:39:13 [EPA Speaker 1]
Great. Thank you, [External Participant 53]. Well, we are still going to keep the Zoom open for another 20 minutes until 4:00. If those of you who have joined us, I certainly want to thank everyone for participating today and sharing your experiences, sharing your remarks and your thoughts and examples and ideas for how we can move forward. If you have any additional comments, you know, please use the e-mail box that we have set up for these sessions that'll be again available through May 29th. But for those of you who don't have any additional comments, feel free to sign off and those of you who want to stay and either see if anybody else is joining us and has other comments, feel free to stay. The EPA team here will stay till 4:00. But otherwise, thank you. Thank you so much for such a great discussion and really interesting remarks today.

1:41:25 [EPA Speaker 1]
It's another question, [External Participant 58], are there any thoughts on controlling interstate transfer of low level of PFAS where PFAS disposal levels may be lower at the state where it's being generated and higher where it's being disposed? Yeah, [External Participant 58], that's a great question. I think it's certainly part of the discussion here on our end. I don't know from any of the states maybe that are remaining if they have any thoughts on that and if they're doing anything about that kind of interstate transfer. The state folks may have already signed off or perhaps just don't have an answer to your question. Sorry, [External Participant 58]. And again, for anyone who's still with us, please feel free to add your thoughts either in the chat or raising your hand or coming off of mute and just letting us know your thoughts or examples on any of these five topics. The floor is definitely open for any and all comments on these topics.

And again, for anyone who's still remaining with us, if you have any other thoughts on any of these five topics, please let us know, raise your hand or just come off mute. There's now a

very small group of us. Or add any of your thoughts into the chat. Otherwise, we will be here till four in case anybody else joins us and wants to have a chance to make any comments.

1:50:36
And we've even lost my background to entertainment. My little black cat had been behind me for some of our session. You guys don't even have that to look at now.

For those who noticed her, that was April, who was enjoying a lovely day on the screened-in porch.

1:53:25 Any other thoughts or comments or inspirations that have come to you in the last few minutes? We've got about 5 more minutes before we close the Zoom session. Certainly welcome any additional thoughts or contributions on any of our topics today or anybody who is remaining on the line with us.

1:57:01 And again, we're almost to the top of the hour. So any last thoughts, maybe we can switch to our last slide so that people can be reminded of the e-mail address. Any other inspirations or ideas for us that that might come to mind? Please feel free to share those certainly at that e-mail address until May 29th. And we really appreciate everyone for sharing their thoughts and hanging in there with us. As I said, we'll close this at 4:00 and that will be the last of our six engagement sessions on this topic.

1:58:45 [EPA Speaker 3]

[EPA Speaker 1], thank you so much for facilitating today's session and all the previous five sessions. That was amazing. Thank you so much and thanks to everyone who was here with us. I think we can go ahead and close this session. Thank you all.

1:59:01 [EPA Speaker 1]

Perfect. Thank you, [EPA Speaker 3]. Thank you everyone for making this happen. This was a great last session.

1:59:07 [EPA Speaker 4]
Thank you.

1:59:09 [EPA Speaker 1]
Bye, everybody. Thank you.

[END OF EDITED TRANSCRIPT OF ZOOM SESSION]

[BEGINNING OF INPUT FROM ZOOM CHAT]

14:12:06 From [External Participant 59] : Who is responsible for paying for clean up?

14:24:02 From [EPA Speaker 7]: Has there been any work to determine background concentrations on Arizona Tribal Land?

14:24:38 From [External Participant 52] : Could also be helpful for clean import of fill. We have developers stating that the providers of fill are not willing to test for PFAS due to what may happen if it is found and is not related to the site.

14:25:54 From [EPA Speaker 3]: For technical assistance, message us in the chat or email [EPA Speaker 4] at ___@epa.gov

14:29:53 From [External Participant 60]: Reacted to "Has there been any w..." with a thumbs up emoji

14:31:58 From [EPA Speaker 3]: For those just joining -- Welcome to today's session on soils with low concentrations of PFAS.

We are currently covering Topic 1.

14:49:21 From [External Participant 53]: There is a need to balance risk-based approaches with implementability considerations

14:51:15 From [External Participant 61]: Reacted to "There is a need to balance risk-based approaches with implementability considerations" with a thumbs up emoji

14:51:46 From [External Participant 56] : Has/is anyone actually pursuing reimbursement from responsible parties?

14:56:31 From [External Participant 57] : I am in Washington state, and my biggest issue, at a facility with a high amount of development, is that the absence of a TSCA listing and level for 'hazardous waste' classification, disposal facilities are making policy decisions on what they will and will not accept at their disposal facilities, and most out west are saying that any detection of PFAS requires Subtitle C disposal, which is not feasible. We need a TSCA Hazardous Waste criteria.

14:57:06 From [External Participant 2]: Reacted to "I am in Washington s..." with a thumbs up emoji

15:01:50 From [External Participant 57] : Agree - I'm so desperate to stop sending soil with 10 parts per trillion to a Sub C facility!! And until there's criteria, I have no other options.

15:03:37 From [EPA Speaker 3]: For those just joining -- welcome to today's session on soils with low concentrations of PFAS.

We are currently covering Topic 4.

15:25:44 From [EPA Speaker 7]: o https://www.ewg.org/interactive-maps/PFAS_tribal_lands/map/

15:25:55 From [External Participant 62]: Reacted to "o https://www.ewg...." with a thumbs up emoji

15:26:42 From [External Participant 60] : Reacted to "o https://www.ewg...." with a thumbs up emoji

15:29:20 From [External Participant 58] : would this discussion be recorded and available for listening later?

15:31:59 From [External Participant 60] : What's the email?

15:32:32 From [EPA Speaker 3]: Please share written remarks via email to Low_PFAS_Soil@epa.gov until May 29, 2026.

15:33:16 From [External Participant 58] : Are there scenarios/ examples in states where background levels are higher than a state's soil cleanup numbers?

15:34:30 From [External Participant 50] : I'll have a better answer for MN in a year or so...

15:36:05 From [External Participant 58] : Are the screening levels for PFOA lower for direct contact or leaching and impact to groundwater?

15:38:01 From [External Participant 58] : Yes, thankyou so much!

15:41:29 From [External Participant 64]: Thank you

15:41:33 From [EPA Speaker 7]: Thank you!

15:41:36 From [External Participant 53]: Thanks everyone

15:42:15 From [External Participant 62]: thank you

15:42:18 From [External Participant 50] : Thank you!

15:42:24 From [External Participant 58] : Are there any thoughts on controlling inter state transfer of low levels of PFAS where PFAS disposal levels may be lower at the state where it is being generated and higher where it is being disposed?

15:44:17 From [EPA Speaker 3]: You're welcome to share your thoughts on any of the five topics listed on the slide.

15:44:23 From [External Participant 58] : Thank you, no problem

15:48:57 From [External Participant 63]: Thank you

15:57:40 From [EPA Speaker 7]: Thank You [EPA Speaker 1]

[END OF INPUT FROM ZOOM CHAT]

INPUT FROM LOW_PFAS_SOIL@epa.gov EMAIL ADDRESS

Below is the input received in the EPA email address given for engagement session participants to include further comments. Where the text reads "no reply sent from…" the meaning is that no human-authored reply was sent; if the email system functioned correctly all email senders should have received an autoreply acknowledging receipt of their email.

[BEGINNING OF INPUT FROM LOW_PFAS_SOIL@epa.gov EMAIL ADDRESS]

Message from [redacted] Fri 5/29/2026 at 5:27 pm; no reply sent from Low_PFAS_Soil@epa.gov:

Dear EPA rulemaking staff,

The Metropolitan Water District of Southern California (Metropolitan) is submitting comments on management of soils containing low concentrations of per- and polyfluoroalkyl substances (PFAS). Metropolitan staff attended the engagement webinars and supports EPA's efforts to better understand challenges associated with handling PFAS-containing waste.

There is currently limited guidance regarding management, transport, reuse, and disposal of soil containing low concentrations of PFAS, creating operational uncertainty, increased project costs, and potential CERCLA liability concerns for water and wastewater systems. Metropolitan requests that EPA provide clearer guidance and regulatory standards for management of soil and other materials containing low concentrations of PFAS, particularly where extensive cleanup or disposal at hazardous waste landfills may not be warranted.

Metropolitan's specific comments are below:

- **Clear low PFAS concentration definition and management guidance – Water and wastewater systems currently lack clear regulatory direction regarding management, transport, and disposal of PFAS-impacted materials generated during routine water treatment operations**

and construction and dewatering activities. In the absence of clear guidance and regulations, agencies often default to conservative disposal approaches, including disposal of soils with very low concentrations of PFAS at Title C hazardous waste landfills, resulting in significant operational and financial impacts. Metropolitan supports development of clear regulatory definitions and management pathways for soil containing low concentrations of PFAS, including reuse and disposal options based on concentration levels.

- **Operational and financial impacts – As discussed above, uncertainty regarding management, reuse, transport, and disposal of soil containing low concentrations of PFAS continues to affect routine water and wastewater operations, maintenance, and construction activities. Agencies may need to implement additional sampling, evaluate alternative construction approaches to minimize soil disturbance, and incur additional transportation and disposal costs where clear management pathways do not exist. In addition, the established use of "clean fill" becomes increasingly difficult without clear criteria identifying what constitutes non-impacted material. A clearer understanding of background PFAS levels, as defined in regulation, and available management options would help reduce project delays, operational uncertainty, and unnecessary expenses that are ultimately borne by ratepayers and may hinder the implementation of critical public works and infrastructure projects.**
- **CERCLA's strict, joint and several, and retroactive liability standard – Any detection of PFOA and PFOS may trigger CERCLA liability. Because CERCLA liability is strict, joint and several, and retroactive, water and wastewater systems may face litigation and potential cleanup liability for even de minimis concentrations of PFOA and/or PFOS. Agencies disposing of construction soils or treatment residuals containing PFOA and/or PFOS could ultimately be held responsible for broader site contamination if no other viable potentially responsible party is identified. This further supports the need for clear definitions and management guidance for soil containing low concentrations of PFAS.**
- **Statutory exemption from potential CERCLA liability – Existing tools intended to minimize liability, including EPA's CERCLA Enforcement Discretion Policy and CERCLA Section 122(g) Settlements, primarily provide protection from federal enforcement but do not shield water and wastewater systems from third-party**

litigation. Water and wastewater systems routinely generate treatment residuals that may be disposed of or beneficially reused in compliance with applicable requirements, yet agencies may still face CERCLA cost recovery or contribution claims if disposal sites are later redeveloped or cited for management deficiencies. Metropolitan encourages EPA to urge Congress to establish a statutory exemption from CERCLA liability for water and wastewater utilities which are passive receivers of PFAS. Water and wastewater systems do not manufacture, use, or profit from PFAS, nor do they control whether PFAS are present in their source water or in soil and groundwater which must be handled as part of their construction and dewatering activities. We appreciate EPA's offer to provide technical assistance to Congress in support of this effort.

Thank you for the opportunity to comment on the management and disposal of soil containing low concentrations of PFAS. If you have any questions, please reach out to [redacted] at [redacted].

☐

_____ | Team Manager

Operational Regulatory Services (ORS)

Metropolitan Water District of Southern California

700 North Alameda Street

Los Angeles, California 90012

O: [redacted] C: [redacted]

_____

mwdh2o.com | bewaterwise.com

Message from [redacted] Fri 5/29/2026 at 3:52 pm; no reply sent from Low_PFAS_Soil@epa.gov:

Hello -

Please see the attached comment letter from National Association of Clean Water Agencies (NACWA) regarding OLEM's Engagement Sessions on Soil with Low concentrations of PFAS.

If you have any questions or concerns, please contact me.

Thanks,

[redacted]

[redacted] **| Senior Director, Regulatory Affairs**

National Association of Clean Water Agencies (NACWA)

1130 Connecticut Ave. NW, Ste. 1050 | Washington, DC 20036

[redacted] **[ofc] |** [redacted] **[mbl] | ____**

May 29, 2026 To Whom It May Concern: The National Association of Clean Water Agencies (NACWA) appreciates the opportunity to provide input to the U.S. Environmental Protection Agency (EPA) Office of Land and Emergency Management's (OLEM) request for stakeholder input on soil with low concentrations of per- and polyfluoroalkyl substances (PFAS). This is a critical consideration in light of the PFOA and PFOS CERCLA Hazardous Substance designations, and one that also could have implications across environmental media and EPA programs. NACWA appreciates OLEM undertaking this effort. NACWA represents more than 360 publicly owned wastewater treatment utilities nationwide. These utilities perform the essential role of treating billions of gallons of our nation's domestic, commercial, and industrial wastewater and stormwater every day. They also manage millions of tons of biosolids which are continually generated through the municipal wastewater treatment process, all with a steadfast commitment to protecting public health and the environment. Understanding background levels of PFAS in soil is very important— and in addition to providing clarity regarding the need for PFAS remediation and management practices at a given site, it could impact the regulation of municipal biosolids that are land applied to agricultural or reclaimed lands. Given this, NACWA respectfully urges OLEM to collaborate closely with the EPA's Office of Water, specifically the Office of Wastewater Management (OWM), regarding any policies that address low-level concentrations of PFAS in soil. EPA's OWM is currently overseeing the Draft Sewage Sludge Risk Assessment for PFOA and PFOS, which was released on January 14, 2025. The draft risk assessment stated that land-applied municipal biosolids containing just 1 part per billion (ppb) PFOA and PFOS exceed the Agency's risk thresholds and could present risks to public health. NACWA believes that 1 ppb constitutes a "low concentration," in line with some state screening levels for PFAS in soils. In fact, research NACWA Input to OLEM's Engagement on Low Concentrations of

PFAS in Soils May 29, 2026 Page 2 of 3 is finding that precipitation and air deposition frequently introduce PFOA and PFOS at levels surpassing this threshold. It is important for EPA to be cognizant of how any forthcoming policies regarding "low concentrations" of PFAS could impact the clean water community. PFAS chemicals are uniquely problematic for clean water utilities. In addition to their persistence and strong chemical bonds, they are ubiquitous in everyday commercial products that can be discharged by households into the sewer system—through daily actions that can shed PFAS such as washing clothes, rinsing off cosmetics, and flushing toilet paper. These activities send PFAS chemicals down domestic drains to the sewer system, where they arrive at a clean water utility that was not designed for PFAS treatment. PFAS often reach the plant at trace or low-level concentrations, but since municipal wastewater treatment typically does not remove them, the treated effluent and biosolids can contain PFAS. NACWA members and other clean water utilities nationwide are limited in selecting from a few biosolids management pathways—land application, land disposal (landfilling), and thermal treatment via sewage sludge incinerators. These three options are all highly regulated and each has its own unique tradeoffs. Land application represents the most sustainable and beneficial management practice available to clean water utilities. It transforms a potential waste stream into a valuable resource of key nutrients that supports soil health, agricultural productivity, and offers farmers and landowners a more affordable alternative to synthetic fertilizers. Land application of municipal biosolids is regulated by the Clean Water Act's Part 503 framework. It is the most frequently used biosolids management option by clean water utilities today; however, it is facing increasing scrutiny due to the presence or fear or PFAS. The draft risk assessment is part of an effort to evaluate PFOA and PFOS risks in biosolids that are land applied. The use of landfills is a second option and one that simply buries biosolids. Myriad economic and environmental considerations impact the use of landfilling: dwindling landfill capacity, increasing tipping fees, stability concerns, prohibitions on landfilling organic materials, the logistical burdens of shipping biosolids great distances, and contributions to greenhouse gases—alongside increasing uncertainty over what constitutes safe or low levels of PFAS in biosolids that the landfill accepts, which OLEM's effort may help clarify. The final biosolids management option utilities have is incineration, which faces stringent environmental regulation. In fact, many utilities have shuttered their incineration units due to difficulties in meeting emission limits. The limits of these few biosolids management options clearly demonstrate the need to facilitate continued, safe land application. The evolving and fragmented federal regulatory landscape has created uncertainty for utilities and states. In the absence of federal standards, many states are adopting tiered management approaches to differentiate NACWA Input to

between industrially impacted and non-industrially impacted biosolids and determine safe conditions for land application. These state efforts to determine safe or background levels of PFAS, done in the context of biosolids management or water quality protection, may be informative in OLEM's current effort. As one example, Michigan has determined that municipal biosolids at or below 20 ppb combined PFOS/PFOA can be land-applied without further restriction. At the other end, if levels exceed 100 ppb, Michigan biosolids are deemed industrially impacted and prohibited from being applied to land. These tiers currently vary by state. If EPA determines that there is an acceptable background level or otherwise determines a "low concentration" of PFAS in soil for remediation purposes, that determination should be applied consistently across regulatory programs, including to determine the safety of municipal biosolids that are used as soil amendments. This could provide a critical foundation for restoring confidence and consistency in biosolids land application programs alongside other EPA testing and remediation efforts. In closing, NACWA encourages EPA and OLEM to advance a collaborative and practical approach when developing policies related to background concentrations of PFAS in soils. There must be scientific consistency across EPA programs, and any policy developed by OLEM must be aligned with ongoing regulatory and risk assessment work underway at OWM. We appreciate the opportunity to provide input and look forward to engaging with OLEM on this matter. If there are any questions or concerns, please do not hesitate to contact me at [redacted] or [redacted] Sincerely, [redacted] Senior Director, Regulatory Affairs

Message from [redacted] Wed 5/20/2026 at 4:17 pm; no reply sent from Low_PFAS_Soil@epa.gov:

While I work in the construction industry, and I believe a number of peer contractors have commented on PFAS in soil, perhaps an additional perspective on the current PFAS-in-soil may influence future guidance.

For perspective: An employee of the EPA, or any other homeowner, who has kept a backyard garden for the past, let's say 15 years, and has purchased (PFAS containing) composted manure from a big box store each year, and worked those amendments into their soil has, under current CERCLA regulation, committed federal crimes in the illegal transport and disposal of PFAS-containing soil amendments.

Again, for perspective, if this employee, or any other homeowner, with these incorporated soil amendments decides to sell that home, they should include acknowledgement of the known contamination to the buyer.

Again, just a comment for perspective.

Thank you.

Message from [redacted] Wed 5/20/2026 at 3:06 pm; no reply sent from Low_PFAS_Soil@epa.gov:

Thank you,

Will recordings of all of the sessions be made available?

___

Message from [redacted] Wed 5/20/2026 at 9:21 am; no reply sent from Low_PFAS_Soil@epa.gov:

Good morning. Will the engagement sessions be made available online or will there be notes or summaries of the feedback and next steps? Thank you very much for working on this issue and involving stakeholders in the process.

[redacted]

_____

Senior Scientist

Office of Science Services

O: [redacted]
C: [redacted]

_____

Message from [redacted] Fri 5/15/2026 at 12:08 pm; no reply sent from Low_PFAS_Soil@epa.gov:

Hello,

I'm contacting you on behalf of the ITRC PFAS Team.

Some members of the team are developing a 2027 project proposal for Anthropogenic Background for PFAS. It's our understanding that EPA recently held a series of sessions on soil with low concentrations of PFAS. We are wondering if you are able to share any information or insights from the sessions that could be used to support this effort so that a) we do not duplicate what EPA has been/is working on regarding this topic, and b) could be used by EPA as well as the ITRC community to enhance this topic moving forward.

The deadline for us to submit the proposal to the ITRC BOA for review is May 29, 2026.

We look forward to hearing from you and let us know if you have any questions.

Kind regards,

[redacted]

Senior Associate Consultant

XXXXXXXX Road, Unit XX

Doylestown, PA 18901

O: [redacted] **| C:** [redacted] **| F:** [redacted]

www.terraphase.com

Message from [redacted] **Thu 5/14/2026 at 12:18 pm; no reply sent from Low_PFAS_Soil@epa.gov:**

Good afternoon.

AGC appreciated the opportunity to participate in the 4/29 session on the management of soils with low concentrations of PFAS. Attached is a document that summarizes our main points on that call.

AGC would welcome the opportunity to continue the conversation. Our Environmental Committee members will be in town on July 21st to meet with EPA

program offices on relevant issues. We extended an invitation to OLEM to meet with the committee members in person.

Please feel free to reach out to me with any questions or to be included on the meeting invite for July 21.

Best,

[redacted]

___

Senior Director, Environment and Sustainability
Associated General Contractors of America
2111 Wilson Boulevard, Suite 1000
Arlington, VA 22201
Direct Phone - [redacted]

_____

www.agc.org

Twitter: @AGCEnvironment

EPA Listening Session on Soils with Low-Concentrations of PFAS

April 29, 2026

Due to their widespread use, PFAS may be present on many construction sites, including drinking water, airports, highways, and military base projects—not just environmental cleanup jobs.

Contractors are on the front lines of managing PFAS and are being left exposed to liability, even though the construction industry does not manufacture PFAS. With no clear federal background levels protective of human health and the environment; no standards for PFAS testing, handling, or cleanup; and limited to no risk-sharing in most public contracts, contractors are being forced to proceed blindly—taking on legal and financial risks they can't control or predict.

AGC of America has called for the U.S. Environmental Protection Agency (EPA) to—

• Establish a background level for PFAS that is protective of human health and the environment

• Create clear disposal and handling requirements for PFAS-containing materials and waste to avoid exposure to legal and regulatory uncertainty.

How PFAS Uncertainty Is Increasing Costs and Disrupting Infrastructure Projects

The risks to the construction industry go beyond Superfund liability.

• Increased Disposal Costs– Due to the stigma of CERCLA designation, some landfills are refusing waste, forcing some contractors to haul waste longer distances to specially designated hazardous waste landfills, which are limited, more expensive and often further distances than traditional landfills.

• Increased Consulting, Testing and Insurance Costs – Site investigations, testing, and engaging qualified environmental legal professionals are costly, coupled with diminished insurance coverage.

• Other Management and Handling Concerns –

o Soil Exports and Imports –There is risk exporting soil to other projects or for use as landfill cover. The same concern applies for importing fill and top soil. What if more PFAS are regulated? What if acceptable concentration thresholds are lowered in the future?

o Onsite Storage Concerns – Does stockpiling of soil with low concentrations require additional safety measures?

o Dredge-and-Fill Materials – These materials can include soil, clay, sand. Same reuse and disposal concerns would apply.

AGC of America Staff Contact

[redacted], Senior Director, Environment and Sustainability

Message from [redacted] Tue 5/12/2026 at 3:48 pm; no reply sent from Low_PFAS_Soil@epa.gov:

Hi, there – I understand the intent of the May 12th session recording was for internal notetaking. Unfortunately, I missed some of the industry comments and would love to

go back and chew on the responses. Would this recording be available to EPA staff (i.e. me)? Appreciate your help! Even a transcript would be excellent.

Thanks so much.

_____

[redacted]

_____

Message from [redacted] Mon 5/4/2026 at 11:16 am; reply sent from Low_PFAS_Soil@epa.gov Tue 5/12/2026 10:00 am:

> **Hi [redacted],**
>
> **Thank you for registering for "Additional Session".**
>
> **Please submit any questions to: _____**
>
> **Date Time: May 12, 2026 02:00 PM Eastern Time (US and Canada)**
>
> **Join from PC, Mac, Linux, iOS or Android: https://usepa.zoomgov.com/w/1605455235?tk=XMeK--MqcmHQBDo2KbXH_XVnW1bOIOF2l0x3Cv-J0o0.DQkAAAAAX7FNgxZ3UVpOZXd4X1FDRzluRXVWaXBmNkVRAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA**
>
> **Note: This link should not be shared with others; it is unique to you.**
>
> **Or One tap mobile**
>
> **US: +16692545252,,1605455235# or +16468287666,,1605455235#**
>
> **Or Telephone:**
>
> **Dial(for higher quality, dial a number based on your current location):**
>
> **US: +1 669 254 5252 or +1 646 828 7666 or +1 669 216 1590 or +1 551 285 1373**
>
> **Meeting ID: 160 545 5235**
>
> **International numbers available: https://usepa.zoomgov.com/u/afF5CA5EW**
>
> **Or an H.323/SIP room system:**
>
> **H.323: 166.108.98.42 (US West) or 166.108.66.42 (US East)**

Meeting ID: 160 545 5235

SIP: 1605455235@sip.zoomgov.com

Hi,

I signed up for two of these sessions but never got the zoom.gov invite. Yes, I clicked resend; I checked my junk mail; I've saved the address to my contacts; etc. This has been an ongoing issue with zoom.gov for a few years, and IT is actively working on it but still hasn't figured it out.

I normally get my links forwarded to me from [redacted] as a work-around, but I didn't realize she doesn't host all zoom.gov meeting, only select ones not including these sessions, and ended up missing the first one I signed up for (screen shots below). I'm not sure who to reach out to send me the link for the May 12th session at 2pm. I'm hoping you can help me with this. If not, do you know who to contact for a link to the session for which I'm registered?

Also, are these being recorded, so that I can go back and watch the one from April 27th?

Thank you kindly,

[redacted]

EPA R1 SEMD

Ecological Risk Assessor

Message from [redacted] Wed 4/29/2026 5:58 pm; no reply sent from Low_PFAS_Soil@epa.gov:

Subject: 4/29/26 USEPA Call on PFAS and Construction

cc: [redacted]; [redacted]

Thank you for today's listening session. I'd like to reinforce a couple points made by the construction contractors. First, the lack of clarity in PFAS regulation is creating risk that contractors mitigate by adding contingency dollars to bids. This is driving up construction costs for public and private projects. Second, we as an industry strive to

comply with all regulations. But regulation is lacking in the case of PFAS. EPA's PFAS CERCLA listing established strict pollution liability. Yet, there is no federal regulatory framework for managing PFAS waste. Many states are slow to address PFAS and are awaiting USEPA's lead. The problem of PFAS soil management will continue to escalate until USEPA 1) promulgates hazardous and industrial waste disposal standards for PFAS impacted soil and water under RCRA, 2) adopts PFAS protective background levels considered safe, and 3) develops thresholds for restricted and unrestricted PFAS impacted soil reuse. Regarding numbers 2 & 3, there is insufficient hazardous, industrial and municipal waste disposal capacity to accommodate the added burden of PFAS impacted soil disposal. Establishment of background and reuse standards are critical to effectively managing this issue.

[redacted] | Director, Environmental Affairs

O [redacted] | M [redacted]

_____

Zachry Construction Corporation

PO Box 33240 | San Antonio, TX 78265-3240

14410 Wurzbach, Suite 120 | San Antonio, TX 78216

ZACHRYCONSTRUCTIONCORP.COM

Message from [redacted] Wed 4/29/2026 12:52 pm; reply sent from Low_PFAS_Soil@epa.gov Thu 4/30/2026 at 9:17 am:

Hello,

Our apologies, we did not see this email message on Wednesday. Please be aware that there is an additional session on May 12 that you can register to attend. If you again do not receive an email confirmation with link to that Zoom session, please check your email system's junk mail folder. If you still do not see one, please send a message to _____.

Thank you for your interest.

Hi! I thought I registered for this engagement session today at 2 pm eastern, but I can't find the meeting link. Can you send it to me again? Thanks much!

v/r

[redacted]

_____

Head, Environmental Restoration Technology Branch (SH321)

NAVFAC EXWC

Port Hueneme, CA

_____

Message from [redacted] **Tue 4/28/2026 11:30 am; reply sent from Low_PFAS_Soil@epa.gov Friday 5/1/2026 at 5:23 pm:**

Hello,

Here are the four topics discussed in the April 27 session for States/Territories:

States' & Territories' Engagement Session Topics and Questions

Topic 1: Background PFAS concentrations and soil screening and cleanup levels

Topic 2: Examples of construction or redevelopment issues and any solutions

Topic 3: Landfill disposal of soils containing low concentrations of PFAS

Topic 4: Liability and insurance

We hope this is helpful, and thank you for your participation in the session.

Subject: List of requested topics for state input

Good morning –

Can you please send me the four topics that were proposed for state input during yesterday's engagement session? I'd like to share with others in my agency that could not attend yesterday's meeting in case they would like to submit written input or comment during the final overflow session.

Thank you!

[redacted]

_____

Environmental Analyst III / PFAS Lead
Statewide Program Implementation
CTDEEP Remediation Division
79 Elm Street, Hartford, CT 06106-5127
[redacted]

Connecticut
Department of Energy &
Environmental Protection

Message from [redacted] Tue 4/28/2026 10:51 am; no reply sent from Low_PFAS_Soil@epa.gov

Subject: Some notes from New York

- **New York's 2003 Brownfield Law requires DEC to develop soil cleanup objectives, taking background into consideration.**

- **New York proposed Soil Cleanup Objectives for PFOA and PFOS about 5 years ago, but pulled those back from the rulemaking after seeing that New Hampshire's background concentrations were higher than our proposed values.**
- **New York Released out background study last year. https://dec.ny.gov/sites/default/files/2025-12/pfasbackgroundstudy.pdf, and expects to publish soil cleanup objectives this year.**
- **An analysis of soil concentrations at brownfield sites in New York City for PFOA and PFOS showed an almost identical distribution of results as seen in rural background. We did not see higher concentrations of PFOA and PFOS in the urban soil.**
- **We do see higher concentrations of PFAS in urban groundwater. We have not determined the source of the higher PFAS concentrations found in groundwater, but does not appear to be from the background soil concentrations.**
- **An environmental advocacy group sampled produce purchased at Long Island farm stands and found concentrations of PFAS in the produce at levels expected based on published plant-uptake values and NY's rural background study results. This is not a peer-reviewed study, so caution should be exercised in considering the results.**

Message from [redacted] Mon 4/27/2026 5:01 pm; no reply sent from Low_PFAS_Soil@epa.gov

[redacted]

[redacted]

Message from [redacted] 4/27/2026 10:07 am; reply sent from Low_PFAS_Soil@epa.gov on 4/29/2026 at 12:09 pm:

> **Hello,**
>
> **Our apologies, we did not see this email message on Monday. Please be aware that there is an additional session on May 12 that you can register to attend. If you again do not receive an email confirmation with link to that Zoom session, please check your email system's junk mail folder. If you still do not see one, please send another message to Low_PFAS_Soil@epa.gov.**
>
> **Thank you for your interest.**

Hi [redacted]!

I hope all is well with you all at R4.

I signed up for this afternoon's engagement session last week, but never received a confirmation email or a link.

Could you please forward this email to the organizers? I just cc'd the email address on the page

Many thanks,

[redacted]
Environmental Risk Specialist

Environmental Affairs Administration
Call/Text [redacted]

Message from [redacted] Tues 4/14/2026 2:15 pm; no reply sent from Low_PFAS_Soil@epa.gov

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