



Episode Title: The National Tribal Toxics Council -- A Conversation with Dianne Barton, Ph.D.

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Lynn L. Bergeson (LLB): Hello, and welcome to All Things Chemical, a podcast produced by Bergeson & Campbell, [P.C. (B&C®)], a Washington, D.C., law firm focusing on chemical law, business, and litigation matters. I'm Lynn Bergeson.

This week, I sat down with Dr. Dianne Barton, water quality coordinator at the Columbia River Inter-Tribal Fish Commission in Portland, Oregon, where she puts her Ph.D. in geochemistry to good use by providing technical expertise related to water quality, environmental toxics, regulatory processes, and the fate and transport of contaminants. Dr. Barton, who is a member of the Bad River Band of Lake Superior Chippewa, chairs the National Tribal Toxics Council (NTTC), which is a U.S. Environmental Protection Agency (EPA) Tribal Partnership Group that provides Tribes with opportunities to engage more explicitly and specifically with EPA on toxics issues. In our conversation, Dr. Barton shares her significant expertise on toxics issues and how the NTTC is engaged with EPA on a wide variety of Frank R. Lautenberg Chemical Safety for the 21st Century Act (Lautenberg) implementation issues, particularly those affecting Tribal communities. Now, here is my conversation with Dr. Dianne Barton.

Good morning, Dr. Barton. I'll call you Dianne, if that's all right with you.

Dianne Barton (DB): Please do.

LLB: It's just so great to have you in the studio today. I am such an admirer of your career and the role that you play now. I know a little bit about you, but I'm not sure our audience does. So perhaps you can just tell us a bit about yourself and go back and tell us about your very distinguished career.

DB: Thanks, Lynn. It's an honor to be speaking with you and invited to join your podcast here. I joined, or signed on to your [Toxic Substances Control Act] TSCA blog years ago, and it's just such a pleasure to actually be speaking with you one on one here. Since this is the All

Things Chemical podcast, I thought I would go through my career and weave a chemical link through some of my key life experiences.

And first, I'm going to start with my father, who was a World War II B-17 tail gunner. So surprisingly, statistically, he survived, fortunately for me. And then he used the G.I. Bill to get a bachelor of science in chemical engineering. And he was an amazing chemist, really. He worked for Amoco Chemicals almost his entire career.

LLB: No kidding.

DB: Starting in Wyoming, he had several patents. And he was just a wealth of information about chemistry. Even into his later years, you could ask him anything, and he would just know the answer to chemistry.

So we grew up in Joliet, Illinois, and my dad was involved in starting up the polystyrene unit near the Des Plaines River in Joliet, Illinois. And a fun story there is when they were doing that unit, these chemical engineers would be bringing home -- they were creating polystyrene and looking at its properties. And he would bring home these little pieces of art, almost, pencil holders that the engineers there were making out of polystyrene. So that's a really strong memory to me, my dad and the polystyrene unit in Joliet. And then he eventually got involved in industrial hygiene and worker protections and started doing the EPA air quality permits for that plant and was involved with inhalation. As we come back to TSCA, I think of inhalation and worker safety that my dad got involved in. And yes, that Joliet plant is now a Superfund site. But when I was there, I remember being on the banks of the Des Plaines River and looking for arrowheads and pottery that was in the scraped-off area, so I have fond memories of that Superfund site.

But I followed my father into science and got a couple of degrees in geochemistry, as you mentioned. And my first job out of grad school was working for the Bureau of Mines, doing some innovative mining. If you've ever been in Arizona, you might have seen these huge open-pit mines. When I joined the Bureau of Mines, they were looking for a different way to do mining that would be less -- have less impact on the environment. And what was proposed and the experiment we were doing -- back to chemistry -- was the injection of sulfuric acid into a copper oxide deposit about 1,400 feet below the surface. That sulfuric acid would react with the copper oxides and dissolve them, and then that solution would be pumped to the surface.

And this was a joint venture with the Asarco Company and the Bureau of Mines at the time, and it was an experiment that eventually brought copper to the surface, but I don't think it ever went commercial. The price of copper, even back when we were doing the experiment, was pretty low. But then I also -- as part of my experience there at the Bureau of Mines -- used sulfurous acid to leach manganese out of really low-grade manganese ores that were prevalent in the Minnesota area -- that's where the Bureau of Mines office was.

And that was my first association through the Bureau of Mines, actually, with EPA as well. For one thing, we had to have these field experiments permitted. And then our organization, the Bureau of Mines, did some characterization work for EPA Ada, Oklahoma, lab. They were looking at waste dumps and what form metals and contaminants were in. And our laboratory had some experience with geologic characterization, and we did that work for EPA. And then the Bureau of Mines was eventually closed by the federal government. And I moved on to Sandia National Labs, where I got involved with innovative environmental

remediation and back again to EPA. One of the things I did was work on a permeable reactive barrier. Are you familiar with that sort of concept?

LLB: I have heard of it, Dianne, but for the benefit of our listeners, I'd love to hear a little more.

DB: So the idea is you have a below-ground waste groundwater that might contain [trichloroethylene] TCE or something. So what EPA was proposing to do -- and they did this actually in North Carolina -- was dig a trench into the ground, fill it with zero-valent iron, a reduced form of iron, and that would -- the path of the contaminant plume would run through that reactive barrier. The redox reaction would break down some of the chlorinated organics in that plume. So learning from EPA and that project in North Carolina, we tried a similar thing in a uranium mill tailings site in Durango, Colorado. This was a collection pond that was draining a leach pile of uranium mill tailings. And we put a reactive barrier in the path of the leachate from that mill tailings pile and successfully brought some uranium, vanadium. I eventually left the project before the end of it, but that was a successful test of innovative remediation technology.

LLB: Right.

DB: I believe it's still going on. People are looking at -- once contaminants get into the ground, it's the worst, a very expensive thing to get them out. So that was successful. Very interesting and -- chemistry, you know, I'm trying to explain how chemistry has been part of my career this whole time. And another really interesting one that I did at White Sands Missile Range -- and this wasn't my idea, but -- was to inject hydrogen sulfide, yes, a poisonous gas.

LLB: I know hydrogen sulfide well, rotten eggs.

DB: That's right. And I actually came to kind of like the taste at the back of your mouth of the hydrogen sulfide.

LLB: Don't admit that often, Dianne.

DB: I shouldn't say that on the air -- cut that part, all right? But the idea is that the hydrogen sulfide would react with chromium that was spilled at a waste site and White Sands Missile Range and change the oxidation state of the chromium and prevent it from migrating in the subsurface. And this was in the vadose zone deposit --

LLB: Right.

DB: -- or it wasn't a deposit. It was a spill. And then eventually, there was an opportunity at Sandia Labs to get into high-performance computing. This is a complete turnabout, but the lab offered their staff this opportunity to learn how to do high-performance computing. I ended up getting another, well, it was not a degree, but more training in high-performance computing and did some artificial intelligence work on infrastructure and interdependencies.

Then when my kids were about starting school, I found a job with the Columbia River Inter-Tribal Fish Commission [CRITFC]. And this is a Tribal consortium that was established in 1977 for the Nez Perce Tribe, the Umatilla Tribe, the Yakama Nation, and the Warm Springs Tribe. These are four Tribes that have treaty rights to fish in the Columbia River. And back in 1977, these were fairly big issues in the area about Tribal sovereignty and the right to fish in their treaty-guaranteed locations.

And so CRITFC was established then in 1977 around those issues. But when I joined in 2011, the first issue that I worked for, for CRITFC, as we call it, Columbia River Inter-Tribal Fish Commission, was the Oregon fish consumption rate. And this is -- when a state sets water quality standards, they typically use a fish consumption rate, and there are national default fish consumption rates -- you're probably aware of that -- that are used to set standards. And at the time, it was -- the national default rate was 17.5 grams per day of consumption, which is just about what you can fit on a cracker.

But Tribes in the area (and throughout the Pacific Northwest) eat considerably more fish than that. And a survey that was done between EPA and Columbia River Inter-Tribe established a fish consumption rate for Tribes in the area of 175 grams per day, so an order of magnitude difference between those two numbers.

And Oregon, then, in 2011 became the first state to adopt a Tribal-based fish consumption rate in their water quality standards. And I worked on that. I brought Tribal leaders to speak to the Oregon state legislature, and they were just so eloquent about the importance of fish and salmon to their culture and to their way of life. And it was very meaningful work for me to see that change happen and to see Tribes be recognized like that in a law. And then since then, the state of Washington has adopted 175 grams per day. Several Tribal lands in this area have adopted very high fish consumption rate standards. And so that's really kind of how I got into toxics and Tribal ways of life. And then in 2011, I joined the NTTC and became the Chair of that organization since it began.

LLB: Fascinating summary of your distinguished career, Dianne. The breadth of your experience and the connection between geology, for lack of a better word, and chemistry, is fascinating. I had no idea, really. I've never heard so many in-the-moment deployments of your chemical background with how it could be an effective rehabilitation technology for the contamination of, say, groundwater, which is obviously something you are very, very familiar with.

DB: Yes, Sandia Labs had a whole -- until I got into the computing stuff, I was in an organization. That is what we did, innovative remediation technologies.

LLB: You'd mentioned how you came to chair the National Tribal Toxics Council, but maybe for the benefit of our listeners, who may not be as familiar with the NTTC, as we call it, I know it was created about ten, 11 years ago. It is funded by EPA through one of its many cooperative agreements with the administrator of EPA. Maybe you can tell us a little bit more about its mission, membership, and goals, and then perhaps maybe a word or two about EPA's relationship with Tribes in general.

I will admit, Dianne, I've been in the environmental chemical area working on TSCA and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) issues for more years than I care to mention. I love the work, but I am not as familiar with EPA's relationship to Tribes and how the NTTC in particular is addressing unique issues pertinent to the tribes. So maybe you can just go into that a little bit for our listeners.

DB: Lynn, I'd be happy to. And I think if we're going to talk about -- and I know we're going to talk about TSCA and potentially exposed susceptible subpopulations (PESS -- we'll use that acronym). And so, unlike any other PESS, environmental justice is different for Native Americans. And really, it goes back to requiring recognition of the unique historical and the legal aspects of Native American claims to environmental protection from the federal trustee, the federal government. And going back to treaties, they're really legally binding

contracts between sovereign nations, and Article 6 of the Constitution holds that treaties are the supreme law of the land.

So the federal government has a legal obligation arising from these treaties between the United States and various Tribes. And this federal trust responsibility that the government has can really frame decision making. And the treaties themselves, I think, are proof of the federal government's recognition of Tribal sovereignty and the duty to account to Tribes. And this trust obligation really extends to all federal agencies. Back in 1975, under the Nixon Administration, the Indian Self-Determination [and Education Assistance] Act became the law of the land. And EPA was the first federal agency with an official Indian policy that was established in 1980, where Tribes now have the authority to implement their own pollution control programs that affect reservation lands.

But then in 1994, to develop the structure of getting input and advice from Tribes, EPA established what they call the National Tribal Operations Committee, which still meets today. And they meet one on one with the EPA Administrator and have, ever since 1994. And then in 1999, the Tribal Partnership Groups started. And these are associated with different branches of EPA and all major media, like the Clean Water -- the Office of Water has the National Tribal Water Council, ORD [Office of Research and Development] has the [National] Tribal Science Council. And then the last, but not least, the NTTC that I chair was established, actually by Steve Owens. Stephen Owens, who is -- I'm sure you know --

LLB: I do know Steve, right.

DB: Yes. Back in 2011, he sent a survey out to Tribes about toxics. And I saw this survey come in from EPA, and I responded to it. I really didn't, at that time, know very much about OCSPP [Office of Chemical Safety and Pollution Prevention] or the role that they might have in Indian Country. And basically, after I responded to the survey -- you got to be careful what you respond to -- I was invited to join the group. And this is an interesting group in terms of Tribal Partnership Groups, because really there is no federal funding through grant programs that comes to Tribes through the Office of Pollution Prevention and Toxics [OPPT] that the NTTC works with in EPA. I happened to be in this in a National Congress of American Indians meeting in Portland, Oregon, and overheard some EPA people saying, "Well, why?" They didn't think Tribes would care about TSCA.

LLB: What?!

DB: And I happened to be sitting behind them. I was thinking, "Wow, boy! That kind of makes me interested in it even a little bit more." As for the membership, on the part of the Tribes, it's a volunteer basis. Tribal, the members of the Council are Tribal environmental staff that have full-time jobs working on all the environmental issues that Tribes have, so in terms of the Council members, I fully recognize their dedication to being part of our Council. We're one of the small ones because I said that no grant funding really comes to Tribes through this Council, or through this office at EPA. So on behalf of *some* Tribes, there is some reluctance to give the time to their staff to be part of our Council. We're kind of small, but we represent -- we have representation from Region 10, from Alaska, Idaho, Oregon, Washington. We have East Coast, the Shinnecock Nation on the East Coast, from the desert Southwest, Tohono O'odham members. These are mostly Tribal staff.

And then we have one elected Tribal member. This means he's elected as a member of his Tribal Council from the lower Elwha Klallam Tribe. And part of our strategy on this is having a member of the Council who can request consultation, formal consultation between

EPA and Tribes seemed to us to be a good member to have on the Council. So he's also a member of the [National] Tribal Science Council and is part of the Regional Tribal Operations Council. He's a very active leader for Tribes here in the Pacific Northwest.

And then I have to mention Zender Environmental. This is the group that manages the grant from EPA that supports the NTTC. Zender Environmental is the -- are based in Alaska, and they're the ones who have brought to the consciousness, I would say, of the Council the significance of the disposal issues in Alaska. Zender provides training and advocacy on the part of those Alaska Tribes. A lot of that comes from Zender Environmental, and I couldn't be happier with the relationship that we have with them. I also want to mention the support that we have from OCSPP -- or from OPPT. We've had -- every time we go -- our Council meets in Washington, D.C., we meet with the Assistant Administrator; we frequently talk to Jeff Morris and Mark Hartman. We've had Jeff come out to lower Elwha and share food with us, and he's come out to Indian Country. We have headquarters staff when we have meetings out in Indian Country, and OPPT couldn't be a better partner to have to help us Tribes understand the importance of TSCA and the potential impact to Tribes. I really want to acknowledge that EPA couldn't be a better group of people to work with.

So then going on to our mission, when Steve Owens started this, he thought it was important to have an organization that would provide more information to Tribes on TSCA. Really, I would have to say, when we formed officially in 2012, there wasn't a lot of understanding about what TSCA could do for Tribes or the role of TSCA. We wrote a document -- or we had help writing a document -- called "Understanding Tribal Exposure to Toxics" that we delivered to the Administrators McCarthy through Pruitt. I don't think we've given one to Regan yet because we're rewriting it. But the purpose of that was to in turn educate EPA on the Tribal exposures, on the unique ways that Tribes are exposed to toxics and how the federal authority through TSCA might better be used to protect Tribes.

So we advocate for Tribal scenarios with risk evaluators at EPA. Oftentimes, when you look at a risk evaluation and you see a relationship to the environment, it looks really recreational. They look at recreational fishers, or people who might be recreating in water. They're not really looking at Tribal exposures, and fish consumption, and the activities that Tribal people or people who do subsistence living have with the environment where you're out pulling nets and you're harvesting gooey duck [Pacific geoduck, a species of large saltwater clam], or you're harvesting natural plant -- native plants -- in the environment.

So it's really not a recreational relationship that Tribes have with the environment. In addition to that, as a PESS, Tribes also have health disparities: higher rates of tuberculosis, higher rates of heart disease, diabetes is very common, liver disease. So these health disparities are really leading to greater susceptibility to chemical stressors, and much of this, unfortunately, comes from housing disparities and economic disparities, too. So we want to make clear to EPA in their risk evaluations that Tribes that have a nonrecreational relationship to the environment ought to be considered in risk evaluations as well as greater susceptibility for a variety of reasons. And we would like to go back to EPA's own guidelines for human exposure assessment that say that considering vulnerability and susceptibility when they're making risk management decisions protects not only the general population, but also those populations at greater risk. And that's in EPA's own guidelines. So I think that our mission really is to facilitate outreach to Tribes and also to help educate EPA staff to -- those risk assessors, those *young* risk assessors who are currently working there at EPA -- and just to let them know that we're there to help and to provide information.

LLB: Now, that's a super descriptive background on the role of the NTTC. A couple of things I just wanted to circle back on. Number one, I share your praise of our colleague at OCSPP. Dr. Michal Freedhoff, I think, has been a vigorous, vigorous advocate of ensuring that PESS are well represented as the Agency tackles the very daunting task of implementing the 2016 amendments to TSCA through Lautenberg.

And Steve Owens, great guy. I didn't know that he was responsible for birthing this particular aspect of the Native American community's relationship to toxics law and implementation in the United States. And in that regard, just one little factoid that I wanted to pick your brain on, and that is, several environmental laws that EPA implements treat eligible federally recognized Tribes in a manner similar to states, otherwise known as Treatment as a State or TAS, for purposes of implementing and managing certain environmental programs, like the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act. Each of those federal authorities expressly provide authority for Tribes to play largely the same role in Tribal country that states do within state lands. Interestingly, TSCA doesn't seem to have that explicit TAS language and is silent on the role of Tribes. Lautenberg was passed in 2016, and the NTTC predated that by three, four years or so. Was the absence of an express statement in TSCA an issue at all in implementing, in *passing* Lautenberg back in the 2014, 2016 timeframe?

DB: Well, thanks for that question, Lynn. Oftentimes I don't get that question, but that *was* an important issue to the NTTC back when Lautenberg was being discussed. And I also want to say that Michal, I couldn't appreciate her more. We've met with her; we've talked to her. I understand that she was one of the primary writers of Lautenberg itself with the emphasis on PESS, and I couldn't -- that has become so important to the advocacy work that we do.

But back to Treatment as State, or TAS, as you say, that the other -- [Comprehensive Environmental Response, Compensation, and Liability Act] CERCLA and Clean Water Act -- has TAS or Treatment as State for Tribes, explicitly mentioned in their reauthorizations. And so back in 2015, the National Congress of American Indians actually passed a resolution asking EPA -- or not asking EPA, this was asking *Congress* -- to include TAS for Tribes in TSCA. That's resolution -- I looked that up -- 15-013. At the time, thinking that the importance of that is that Tribes would then be eligible for Section 28 state programs. These are grants to prevent unreasonable risks that are administered to states. And I don't even know how big that program is. Tribes are eligible to receive funding on RRP, renovation, repair, and painting programs, lead abatement programs through TSCA. But there're really only four Tribes that are authorized to do that, so it's not really well taken advantage of. So back then, TAS was an important issue to the Council. And Lautenberg isn't entirely silent on Tribes.

LLB: Okay, I didn't know that.

DB: The confidential business information (CBI) exemptions provide Tribes, equivalently to states and governments, to request CBI when they're administering a law or health treatments. It's kind of interesting that Tribes are mentioned there. I don't think any Tribe has ever set up that capacity to request CBI. But it is in there. But TAS is not. And I think, interestingly, the fact that Tribes are not mentioned or that they don't have similar TAS, this would also mean that they would not be able to be preempted in any state, in any regulations. I think. I'm not a lawyer. I think you are.

Would Tribes be -- if Tribes were to set chemical regulations, would TSCA -- would they *not* be preempted by TSCA since they are not mentioned as TAS? I don't know. I really

don't think Tribes are anywhere near that. We're still in the middle of working and developing our capacity to deal with issues like TSCA in the first place. But just an interesting thought there. And thanks for asking. Sometimes we don't get asked about that.

LLB: Well, it is -- I think there is much that we do not appreciate. I'm a -- as you correctly note -- a lawyer in Washington and have been working with TSCA for many years. But it's only been in the recent past that TSCA and its relationship to potentially exposed or susceptible subpopulations, as you correctly note, a term we call PESS, in Native Americans has been correlated to a much greater degree. And in that regard, Dianne, I would imagine you have been extremely busy on behalf of the NTTC, particularly perhaps since the Biden Administration took over in early 2021 in implementing Lautenberg.

I know you've spoken very eloquently in a number of contexts on specific issues in which you are engaged, including HBCD [hexabromocyclododecane] and fish consumption. We've talked a little bit about some of your historic work with regard to fish consumption generally and how it is uniquely, or should be uniquely seen as, different from non-Native American populations, but also EPA's risk evaluation of HBCD and PESS, as that term relates to Native Americans' fenceline communities. There are a whole host of issues that I think this Administration has really focused on, given the new language of PESS in TSCA and what that term means with regard to ensuring that that cohort, or as many cohorts as are defined by that terminology, are expressly recognized for purposes of risk evaluation and risk management, under TSCA Section 6 in particular. So maybe you can tell us a little bit more about how you -- and your work -- has really probably exponentially increased since 2016 and Lautenberg's implementation by EPA.

DB: Thanks, Lynn. That really gets, I think, to the heart of the work that we've been doing or the advocacy that we've been doing since Lautenberg. But even to set the stage and even go back before Lautenberg, one document that I look to is EPA's 2010 PBDE (polybrominated diphenyl ether) in flame retardant. I'm sure you're very familiar with it, their exposure assessment. And just if you look at that document, you can see the problem that we were facing back before Lautenberg. In that document, EPA used the levels of PBDE in fish tissue that were taken from a marketplace in Texas, and the measurement was 0.32 nanograms per gram of PBDE in a finfish. In the very same document, they acknowledged that the level of PBDE in Washington state fish was 1,059 nanograms per gram. In the Great Lakes, it was 148. And yet, they use -- the food level they used was from that marketplace in Texas, where it was orders of magnitude different.

The fish consumption rate they used in that evaluation was 11.6 grams a day, compared to the ones I was telling you about earlier, 175 grams a day used in Oregon. And then on-reservation standards used by the Umatilla is 389 grams a day, so completely different. And so the result of that exposure assessment by EPA -- this is a quote -- they said they found unusually high exposures in biomonitoring in the general population that could not be explained by dust. They pointed to dust as the main route of exposure to the general population. And that, quote, "suggested the possibility that there were other exposures not identified." So that's what we were up against.

They didn't see the -- or EPA's risk evaluators at the time or exposure assessors were not seeing these routes of exposure to PBDE -- as you know, it's very bioaccumulative, it's found in the Arctic in all sorts of wildlife and mammals. That's before Lautenberg, so Lautenberg; PESS, as you mentioned, is referenced 18 different times in Lautenberg. It's really, it was a game changer. And that's why I like to give so much credit to Michal and the

staff that developed the language in Lautenberg. It was so important. I met Tom Udall at one point in a food line once --

LLB: No kidding!

DB: -- and I said to him, "Thank you so much that you recognize" -- you shouldn't talk to senators in food lines, but I said, "Thank you so much for putting that language into Lautenberg." And he, rightfully so, acknowledged the staff that worked on the language that were the key advocates for that approach.

So what we see is that for environmental exposures, for some of the reasons I talked about earlier, the Tribes may represent the PESS that's required by TSCA to be looked at. And it's important to know -- and some people were not familiar with Tribes -- Tribal lifeways are not really historical anachronisms. On the Columbia River, you can see Tribal members using dip nets to collect salmon the same way they did 100 years ago. In surveys of Alaska of households, not just Tribal households, 92 to 100% of the households in rural Alaska use wild fish, and up to 98% are harvesting their own fish, so they're out in the water harvesting fish. The same in the Nez Perce area. And even the Navajo Nation has 68% fish consumers as part of their population, so it's not just I'm from the Pacific Northwest based here in Portland, Oregon. It's important to note that subsistence living is not the way you might think it would be, historical. And it's not this Anglo-European meaning of subsistence.

I want to make that point, too, that where it looks like a bare eking out of existence or kind of a miserable way of life. By contrast, a Native understanding of subsistence is much broader than that. Native Americans that are engaged in hunting and fishing and gathering, this is part of their life and their celebrations. It's woven into the very fabric of their culture, and fish consumption here in the Pacific Northwest, it's a way of life. There's a Yakima elder who said, "Salmon are part of our spiritual and cultural identity." And the Tribes themselves, their first treaty is a responsibility to the land and the environment. So back to the HBCD, sorry --

LLB: No, no. Dianne, I've got to tell you how much I appreciate you clarifying terminology. Words matter. And it's -- that perspective is often just absolutely missing -- and as you correctly note with regard to that PBDE risk evaluation in 2010 -- was altogether absent from an analysis, which really cuts to the core of why PESS need to be carefully considered in risk evaluation, or you're going to get an extremely distorted analysis, as you've described.

DB: Yes. And that's pretty much what they found. So when HBCD was part of the first ten chemicals, our Council immediately were excited to engage in a dialog with EPA on this, because it's a flame retardant. It's bioaccumulative. There's -- the Stockholm Convention banned it in 2013. We just thought it was a no-miss chemical to really advocate for looking at these Tribal exposures through the risk evaluation. Unfortunately, that's not exactly what happened. If you dive into the final risk evaluation, you'll see that EPA *did* use a high-end fish ingestion rate to represent acute exposures in that risk evaluation. And that itself, for us, was a win because we had to work hard to get EPA to do that. And they used a Tribal fish consumption rate to represent that as an acute exposure. Now, the problem is for Tribal people, it's not an acute exposure. It really is a chronic.

LLB: It's chronic, yes.

DB: It's a chronic consumption. So in that risk evaluation, EPA instead used central tendency risk rates to represent chronic exposure. And I think once again, it's probably really underestimating risk to PESS for that flame retardant. And so, in the end, EPA really found no unreasonable risk, even though this is found in fish and is pretty well documented in a lot of the Tribal natural resources. I really still take it as kind of a win that the subsistence rate was used in that risk evaluation, but since HBCD was not really part of the econ--, you know, it's no longer produced, I think, in the United States, though, back in 2016, when we were gathering evidence about why EPA should care about Tribal exposures, we were still finding HBCD in polystyrene -- back to my father -- in the Home Depot. They were still selling leftover insulation board, pink board that had HBCD in it. And Zender found a document where they're trying to sell the Tribes insulation board that had HBCD in it. So, in a way, I almost looked at that as dumping of stock on populations that had no warning about HBCD as a component of that insulation board. But nevertheless, I think as we move on to the Next 20, that you probably -- if you've looked at the scope -- see that like in TBBPA [tetrabromobisphenol A], subsistence consumption is in the scope, so we're making some headway.

LLB: You're making extraordinary progress, Dianne. And again, to give full meaning to PESS, these fundamental differences in lifestyle need to be reflected in the risk evaluations. It's not just a question of implementing Lautenberg in a way that Congress intended, and certainly, as the Biden-Harris Administration is implementing it. But it's also a fundamental aspect of environmental equity, which is another very important goal, an all-of-government commitment that this Administration is pursuing. So whether it's just an accurate interpretation of the PESS concept in risk evaluation or a fundamental aspect of environmental equity that EPA is very, very mindful of, you're making extraordinary progress in having these concepts explicitly referenced in the risk evaluations, so congratulations to you and your team.

DB: Well, and to the EPA staff that is listening. And I don't know if you've met some of these younger risk evaluators that they're just hiring, but they're very dedicated, and they're listening to us and frequently reaching out to us and talking to our Council.

LLB: Well, let's talk a little bit about your fabulous remarks during our recent TSCA Six Years Later conference that we had. We're recording this in late July, and in June, we recorded that program, an all-day program on EPA's implementation of TSCA six years after Lautenberg was enacted. You were a fabulous member of the faculty and shared some, I think, very disturbing statistics with regard to chemical disposal, the disposal of chemical mixtures in articles containing chemicals, some of which I think you explicitly mention being the PBT chemicals that we're talking about, these flame-retardant chemicals embedded in furniture items and a wide variety of other consumer goods.

We know that disposal is defined as a condition of use, which, for purposes of TSCA -- all the TSCA aficionados out there know that for purposes of TSCA Section 6 risk evaluation, disposal is an explicit condition that EPA is required to review. I note also that there is no Resource Conservation and Recovery Act [RCRA] Subtitle C; that's the type of facility that manages defined hazardous waste, as that term is defined under RCRA, in the state of Alaska. This is all part of the remarks that you provided, Dianne, and that 75% of the Tribal community in Alaska live within one mile of a disposal site, which effectively means -- do the math -- that most Tribal communities are fenceline communities, meaning that there are communities within the definition of TSCA that are people likely to be PESS. Are the risk evaluations underway now, do you think, paying sufficient attention to these exposures, and if not, what might be done differently?

DB: Well, Lynn, I think they're starting to. You mentioned the fenceline screening. And I really think that's a good place to start. But let me just get back to Alaska. I was just on a call with Lynn Zender, again, and learned that some of those statistics might even be worse than the ones that I mentioned at the Six Years Later conference, that the proximity to drinking water sources in some of these open-burn sites can be as close as a thousand feet. And then she shared some of the data. They survey these Alaska Native villages, and 30% of those surveyed are noticing the odor of burning. And this is a practice that's going on in Alaska. And we have sat down with Alex Dunn and Mark Hartman and have talked about this a long time ago, the difficulty of disposal. And it's a very difficult issue. And I would like to bring up, of course, that it is a condition of use under TSCA and that some of the disposal laws are just not as protective. I see TSCA as a gateway, the gateway legislation, *not* gap filling. I think TSCA stands between the public and the use of chemicals. And I tried to lay the background of how chemistry has been an important part of my life. But I think this disposal issue is very difficult for all of us, and I think it's really important to know that -- it seems that trust in TSCA -- I think these comments were made by Michal -- is fairly low. The public doesn't have a lot of confidence in the objectivity of TSCA evaluations. Even if they know about them, they're not seeing the protections coming through TSCA, and they really should, especially under Lautenberg.

And so back to disposal, the fenceline issue, we've brought that up. I know that EPA is currently looking at disposal regulations. They vary from state to state. It's an extremely complicated issue, even if we wanted to get into it. And I'm a member of a -- I was invited to be a member of a state and local agency group that works on, discusses TSCA. We've recently met with Michal to talk about the issues that states have, and some of the data that states can bring to TSCA and the risk management. And the principles that this group put together also addressed disposal, so it's not just an issue related to Tribes and those horrific conditions in Alaska, but the state group advocated in their principles that were delivered to Michal a couple of months ago that they're advocating for requiring manufacturer take-back of products and trying to get circularity into disposal programs. It seems to me that this has to be also part of Section 6. And you told me over e-mail that you're working on some Section 5 relationships between circularity and product stewardship.

But maybe it can be broader than. I'm really interested in seeing where that goes. And I learned so much from your All Things Chemical podcast on that. So those are important issues. And then one more thing I wanted to say about Alaska is the bipartisan infrastructure bill is beginning, or they will be providing funding to Tribes to improve some of these burning conditions. I learned about that last week, so I'm really happy that these issues are being addressed by those infrastructure dollars. It is so needed.

And then back to is EPA moving in the right direction? I think the fenceline screening that they did for the first time, it's a great start. And looking at the SACC [Science Advisory Committee on Chemicals] review of that exposure, the fenceline screening technique, I think there are some things that need to be done on there. It really makes sense to me for risk evaluations, if you focus on the PESS, it might be a more cost-effective way to get to reliable or effective risk evaluations and therefore risk management issues. So I think the definition of "fenceline" certainly needs more clarity. From the screening tool, you had to be a community within a certain location of a manufacturing facility and the releases were only related to that manufacturing facility and their emissions within a certain boundary. And as we're trying to share here, our definition of "fenceline" is much broader than that. And then, of course, I worry that the outcome of any sort of a screening tool, when there's a lack of data, that doesn't mean there is no risk. And so these screenings have to be more exhaustive in their considerations of routes of exposure. And the lack of data doesn't mean a test

doesn't exist. It might not be a Tribal PESS, but I think for all the chemicals that EPA is reviewing, PESS are important.

And then -- sorry, I keep jumping around here, but I know the SACC review of the TSCA systematic review also came out last week, and I concur with that, too. Somehow, the systematic review that gets the hazard data on these chemicals in a way kind of constrains how exposure is looked at. The systematic review identifies the particular chemical, TBBPA, for example, and then the risk evaluators working at OPPT then have to use that data to find exposure, and they're not necessarily going to find health effects and exposure effects when your first literature search is the chemical itself.

The SACC recommended that these systematic reviews seed the search to identify PESS. And I think that's so important. And I also agree with Bob Sussman's comments that were in the docket that we can't really wait for TSCA to get this right, that we should maybe look at other risk evaluation processes that have a way to -- systematic review processes, I'm sorry, that have a way to get to this exposure data better.

LLB: Yes. It's troubling that the systematic review has been such a stumbling block in implementing Lautenberg. And you're ahead of me, Dianne. I had not look at the reissued SACC report, but I intend to do so.

DB: Well, it just came out on Friday, so you're okay.

LLB: Well, there you are. But you put a lot in that response. There's just a lot to unpack. I'm particularly attracted and fascinated by the concept of an extended producer responsibility element to a risk management option under TSCA Section 6. Very, very interesting concept because, as you know, that's been one of the initiatives, much more mature in European countries than here in the United States. But we're beginning to see state extended producer responsibility requirements with regard to certain segments of the commercial sector. But it's one way that many people believe is getting to circularity and being much more mindful of regulating chemical substances in articles in a way that ensures that they are either repurposed or simply not discarded in a way that perpetuates the whole chronic situation that we have in the United States today. But using TSCA for that purpose is a very interesting concept.

DB: I'd like to hear what you think about that, or maybe we can talk about that in the future.

LLB: I would love to have a whole discussion about that, Dianne, with some of the folks that I know: Kate Sellers, with whom we began a conversation on another podcast on circularity and ensuring sustainability, because there are just so many ways we can optimize TSCA in a way that is more perhaps effective than focusing on some of the issues that we have. But it is a very elastic statute that provides extraordinary authorization to EPA, Tribes, states, and others. I think its implementation over the past six years has been marred by successive administrations that have [taken] one step forward, two steps back, moving forward.

And one of the other topics that you mentioned that I am a strong believer in is that a lot of the concepts, the legal underpinnings of the terminology and the new concepts unique to Lautenberg, including PESS, fenceline communities, conditions of use. All of these terms would benefit from greater engagement by all stakeholder communities that are relevant: states, Tribes, federal regulators, industry, [non-governmental organization] NGOs, everybody. Because we do not spend enough time talking about how we can optimize the statute and ensure that it is implemented in a way that TSCA -- or that Congress -- intended,

rather than moving in a direction that doesn't fully utilize what I think Congress intended in implementing it back in 2016. But I digress now. Dianne, you really inspire me to think of how we can just be better at implementing TSCA.

DB: I'm enthused by your enthusiasm. And really, it was a -- I listened to that Kate Sellers podcast that you had, and she paints such a picture of the way it ought to be. And that was really inspiring to --

LLB: Indeed. Well, let's -- we will have another podcast because being more explicit about TSCA's utility in this regard is a fascinating subject.

Let me ask just a couple of other questions, because we're running out of time here, Dianne. I should have allocated more because you are an engaging speaker and just full of excellent ideas. Are there other priorities in the toxics area on which you are now working? Or is TSCA and all of the work you're doing in water applications as well, consuming about 200 percent of your time right now, I'll bet?

DB: Yes, pretty much. Well, one thing that we have done, and even though we are not the Tribal Partnership Group for ORD, just really think that a lot of ORD programs could better support TSCA risk evaluations at this very important time. And I know we just commented, our Council just commented on ORD's strategic planning and still find it lacking a little bit in the way that it looks at TSCA chemicals. We have the Next 20. I'm sure the people at OPPT know what's coming after that. And I'd like to see ORD step up their data collection and monitoring programs for that. Out in the real world, or the other non-TSCA world, I work on an EPA monitoring program, and I always bring up TSCA chemicals, but everyone is still monitoring for PBDE and PCP [pentachlorophenol]. And I wish there was a better coordination between EPA-supported monitoring programs and the ORD. I think it's better than it was.

LLB: It is. I think it's improving, right.

DB: Yes, I do. But I'd like to see it more closely in step with TSCA, the chemistries, because it's the data. We run into risk evaluations where there's no environmental or exposure data. And so what [are] OPPT risk evaluators to do? They're going to have to use analogs, and if that doesn't exist, they're going to -- it's just not the best it could be. And so, we've commented on that.

And then one other issue that's interesting to relate to your listeners is the evaluations of chemicals out here in the Pacific Northwest in California. You may have heard of 6-PPD [N-phenyl-N'-(1,3-dimethylbutyl)-p-phenylenediamine]. This is a high-production-volume chemical; turns out that it's a reaction product. It's an anti-ozonate, so that's used in tires and keeps tires from falling apart, which is very important if you drive a car. But it turns out that the 6-PPD quinone, which is the reaction product, is a salmon killer. And it's been definitely connected, the 6-PPD quinone, to pre-spawn mortality of coho salmon that are migrating to spawn. So this fish has been out to the ocean and is killed by a rain event that washes water off of roads into salmon spawning streams. And it's been detected in California streams at concentration that will kill half the coho.

So what does this have to do with TSCA -- is the environmental evaluation missed this. This 6-PPD quinone, the zebrafish test -- I'm not a toxicologist. But whatever environmental testing that was being done just missed this, and the [U.S.] Tire Manufacturers Association is on this and looking for alternatives. So I go back to -- I wonder about those --

environmental testing that could look at a reaction product like that and at the mortality that we see in the real world and misses that.

And then the final thing -- I know we're running out of time -- are the test orders. I would like to see EPA use some of their Section 4 test orders to get more data on exposure. As you know, they're doing dermal -- I mean, worker exposure, yes. They're doing the dermal and inhalation test orders on TBBPA and TPP, and they have done some environmental testing. But it's, once again, those specific toxicity tests that, what are they missing? I always worry about that. And then the most -- the issue I'd really like to circle back with you on is circularity. So I'll just leave it at that. We're meeting again with EPA in headquarters in September. We've asked them to talk to us about what they are doing on product stewardship, and so maybe that's a good place for us to start the next conversation.

LLB: Yes. Your enumeration of other areas for just greater collaboration between OCSPP, and OPPT, and ORD, and just other organizations generally, both in and outside of the federal family, to maximize the utility of existing data, particularly exposure data, would go a long way, I think, in accelerating some of the programs that are required under Lautenberg. But it takes a while for these things to get off the ground. And as you correctly know, Dianne, there is a lot of progress being made. I think the current Administration is trying very, very hard to optimize existing bodies of data that ORD and maybe OPP and other federal agencies have to facilitate better, more nimble, and more representative risk evaluations that will give rise to risk mitigation so they are targeted and most importantly, effective. So in no small part because of your efforts and the efforts of the NTTC, making some headway there. You have much to be proud of, and we have much to thank you for, Dianne, for all of your extraordinary contributions and take this opportunity to give a shout-out to your Dad, because you obviously didn't fall far from *that* tree, given his science background and your just extraordinary contributions to helping implement TSCA in a way that would make Congress proud.

Is there a way that our listeners can get more information on both your work, the NTTC? I know you've been a prolific commenter on many of the EPA initiatives. Do you have a catalog of those available that people might want to --? I've read a lot of them, Dianne, and your comments of your organization are really excellent and present a lot of information in a way that is very advocacy minded, and I think very helpful to EPA. So are those available online in any way?

DB: Yes, thanks for asking, Lynn. Our Council has a website, tribaltoxics.org, one word: tribaltoxics. And I just want to remark on your comment about this is taking time. A Tribal perspective is a 500-year history.

LLB: Well, I hope it's not quite that long.

DB: Since colonization started and then the final recognition of the treaties by the federal government, and then 50 years later, it became part of federal trust responsibility. This is just speeding along in Tribal time, that we're able to see subsistence actually mentioned in the scope of one of their risk evaluations, so it's lightning fast.

LLB: In that context, I take your point.

DB: Yes, but I'm also happy if people wanted to reach out to me personally. My information, contact information is on tribaltoxics.org. And we're always in the *Federal Register*. Like Lynn says, you can read a lot of our comment letters in there.

LLB: And for those of you that were not able to listen up to our TSCA Six Years Later program in which Dr. Barton participated as a faculty [member], we have a link to that on our website at lawbc.com. That's L-A-W-B-C.com, and I would urge you to try to listen to the entire program because it really provided a wonderful opportunity for people of varying perspectives with diverse backgrounds to talk about what is going well with TSCA's implementation -- well, EPA's implementation of Lautenberg -- and in how might we do better. And there are plenty of opportunities to do better. But I think, Dianne, your articulation of how the very important concept of potentially exposed or susceptible subpopulations is a very meaningful, very potent provision in the law and has finally given expression to risk evaluation practices that heretofore have undervalued and minimized exposure pathways for vulnerable populations that we simply can't countenance anymore. So we're making progress, but a long way to go. I really want to thank you for being so generous with your time, Dianne, and just so good at what you do. Thank you so much.

DB: Pleasure talking to you.

LLB: I'd like to thank Dr. Barton again for speaking with me today about her important role as Chair of the National Tribal Toxics Council and the many initiatives in which Dr. Barton is engaged, advocating for programs to educate about the disproportionate exposure of Tribal communities to chemicals and how to minimize those exposures.

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