Washington State
Liquor and Cannabis Board

Washington State Liquor and Cannabis Board Cannabinoid Science Work Group Meeting

Thursday, June 1, 2023, 10:00 a.m. to 11:30 p.m.
The meeting was convened via Teams

Meeting Minutes

AGENDA ITEM 1: CALL TO ORDER AND ROLL CALL – 10:05AM

Kathy Hoffman opened the discussion. Present were:

Richard Sams
Ryan McLaughlin
Holly Moody
Jessica Tonani
Brad Douglass
Taylor Carter
Jim Vollendroff, WSLCB Board Member
Justin Nordhorn, WSLCB
Kathy Hoffman, WSLCB
Cassidy West, WSLCB
Daniel Jacobs, WSLCB
Nick Poolman, AGR

Absent: Alicja Binkowska
Gillian Schauer
Chris Beecher
David Gang
Bill McKlay

AGENDA ITEM 2: APRIL 6, 2023 MINUTES AND ACTIVITY REVIEW

Kathy Hoffman asked group members to offer changes/concerns regarding the April 6, 2023 meeting minutes. There were no revisions offered by email before the meeting or during the meeting, and the group accepted meeting minutes as drafted. Kathy briefly discussed workgroup activity between the April 6 and June 1, 2023, meetings. The current agenda was briefly reviewed.

AGENDA ITEM 3: Continued Discussion: ***Diminishing the gap between scientific expression and regulatory/statutory expression. Creating an agreed upon language or nomenclature around the terms we use.***

Human Safety Guidance

Kathy Hoffman: I'd like to start with our first question here, our first discussion topic, and that is the thinking around human safety guidance. I'm going to kick it over to Jessica and maybe get us started with our first questions: Is there a way we could look at cannabis product classes like flower, edibles, and distillate versus a single crop since safety around consumption method could be very different?

Jessica Tonani: I think in the State of Washington we have the ability for consumers to buy flower in generally in 0.5 gram, 1 gram flower that they inhale. We have edibles that are 10 mg, which when you think about how much oil actually goes into a 10 mg candy, for example, it's a fraction of a drop of water. And then we have concentrates that people inhale that are concentrated down for material that is inhaled. My thinking is that we at the beginning of 502 classified those products as all containing the same risk for every contaminant, and I think that's probably not accurate. And we have the opportunity now 10 years later to maybe begin to look at those classes as to what risks they actually hold. So I think it's pretty apparent when you think about eating a fraction of a drop of water that the amount of a contaminant that can be in there may be very different than inhaling an entire gram of flower material.

And inversely things may be higher risk in one scenario or the other, but I'd really like to see if we could break those product classes out and actually look at contaminants via safety based upon those product classes. That would be my thought around it.

Kathy Hoffman: How would we break that down? We test product classes differently. When we think about human safety guidance, how do we break that down for flower? What might we say for edibles? Because I think, as you know, consumption method is going to require contemplation of different safety concerns or things that people might want to know about or be educated about. What do others think?

Tracy Klein: Well, I guess my question is what the standard is. I mean, is there a standard for each one of those classes? I know there are for some, but is there one for every single one?

Jessica Tonani: [Audio cuts out] is a group. They're all bundled as the same thing, Tracy. And I guess my thought is that, for example, if we stepped back and said the amount of oil and edible may be very similar to what people consume on a mint. Or there are other proxies out there that we may be able to actually break out the safety a little bit better because, right now, they're all considered to be the same thing with the same thresholds associated with them. Brad, you look like you wanted to say something.

Brad Douglass: I think from a scientific perspective or a toxicological perspective, it certainly makes sense to have different standards or tolerances for contaminants for different routes of delivery in different product classes. Absolutely. And I think that was recognized at the beginnings of i502 and other state cannabis systems. I think the challenge is one of practicality. We know that, for pesticides, in particular, there are data gaps, knowledge gaps in terms of the toxicology, and chronic versus acute toxicity for individual pesticides or pesticide classes. That has just exponentially increased when you go to something like inhalation versus ingestion or topical or combustion. So I think that's a challenge that we will face as a scientific community as regulators is if we think that this is important to do, do we have enough data to be able to have different product classes or different levels for different routes of administration? That, to me, is a monumental challenge.

Kathy Hoffman: I think you raise a really good point, Brad, and I think we've seen this, and we've talked about this together. Is there enough data? And how do we start developing that data? Any thoughts on that?

Ryan McLaughlin: This may be a sort of naive question, I guess, but how do they work with regulating pesticides for other non-cannabis-related crops in the state? Like, what are the thresholds for those? Because presumably, eating a crop or consuming a crop in different forms, whether they are processed or not, are there different guidelines for something that's -- does that make any sense? I'm trying to make sense, but I'm out of my league here.

Jessica Tonani: They actually are. And I think that's what's kind of spurring the question is, is that if apple versus mint have different thresholds because you kind of assume that you eat less mint than an apple, for example. And so the question is, could we identify proxies for these different classes? And I think that we may find, for example, the concentration class is somewhat unique and maybe needs to be a little bit more strict. But there may be the ability to find proxy crops for especially the edible and maybe even the flower. I don't know what other people think.

Holly Moody: I was going to say I noticed that when I was doing the analysis on the residuals in concentrates, and that's mostly where you're going to get those because you don't use your butanes and your hexanes and stuff on flower, necessarily, but also, we run into an area where you have edibles that are made with like, they call it full-spectrum extracts, or they call it cannabis -- like it's -- I

don't know how they phrase it for sale or retail, but it is something that they do make a distinction even in the edibles, and what's the source? Is it full-flower stores, or is it a concentrates source? And I know that, too, when you have a small amount of pesticide, for instance, that's contained in a batch of flower per se, and you extract that out with some sort of a carbon-based solvent, anything that dissolves in that as pesticides will wind up in a higher concentrated form in your concentrate. So there are some things that do have some crossover. And I didn't mean to muddy the waters, but I believe that we do have some muddy waters already.

Kathy Hoffman: When we talk about proxies, do we have any? Has anyone had any experience with that? No? Any other discussion on that? Because I want to keep us moving along, we have plenty of time to touch on these topics.

Jessica Tonani: The one other thing that I would say on this is, I'd like to see if we could also break out the question of what is safe soil for our farmers, and figure out if maybe using WSU or somebody else we can actually begin to look at what levels in the soil correlate to what levels in the floral material because a lot of other crops have that threshold established, so they can determine whether or not the cherries will be safe or the apples. You know, they plant different crops in different soil based upon the likelihood that the product will be unsafe. So if we could start to get that data for our farmers, I think we could address some of these questions and really move things forward, as well.

Kathy Hoffman: Nick Poolman, do we have any of that data from WSDA?

Nick Poolman: I would doubt it. Yes, I would doubt we have that kind of data in a ready or easily accessible way to use. I think sometimes that data could exist, but it would take real looking at different data sets to be able to compile something that would be useful for us.

Brad Douglass: I wanted to add in using different models. There's a fair amount of ingestion data when it comes to toxicology of insecticides and pesticides. Inhalation is a different story. But there is a decent amount of toxicology data when it comes to tobacco. And I know in the cannabis world, we generally frown upon comparing ourselves to tobacco, but there are a lot of similarities there from a scientific perspective. And I think that can be used as one analogy or one model in establishing at least inhalation-based tolerances or action levels.

Kathy Hoffman: Brad, could you speak to the concern I think there is to compare cannabis to tobacco for folks because I know that's something that we hear at the agency frequently, and that is, "Just regulate it like tobacco. They are essentially the same thing." Can you speak to that?

Brad Douglass: Maybe I can characterize it as emotional when the tobacco was bad and cannabis is good in very stark sort of black-and-white terms. But I think they are both plants, and there are a lot of similarities there. There might be different pesticides and other contaminants on the different crops, but there's a lot of crossover, too. When presented with the option of starting from scratch for cannabis, which is largely the case, and having tobacco, which we've had decades of experience and looking at contaminants, I think there is some good data that we can draw upon to maybe make policy.

Jessica Tonani: You know, Brad, even like in the DDX stuff, there was some pretty good data on when you combust plant material with DDX and what actually ends up being inhaled. So I think you're right on the fact that there is some good data out there around inhalation.

Taylor Carter: When I was at the Society of Toxicology Conference, there was a Dr. Maxwell Long at Arizona State University, and he specifically looks at the carryover of pesticides and their neurotoxic effects as well as other physiological or toxicological effects. He actually created the pesticide limit for Arizona's cannabis program. So he may be probably the leading researcher in this direction of what's carrying over and what effect it is having. And it may be something to either see what he set for them or follow his literature to see maybe a good baseline of actual cannabis effects at certain levels from the actual crop to the actual effect.

Kathy Hoffman: I also want to take a look at this next question. How does this thinking work with the nomenclature we have begun to develop within in the guidelines? I know we haven't talked about any guidelines, but I guess maybe that's the next thing. What kind of guidelines could we put in place? Are there any connections we can make at this point?

And just as a reminder from the last meeting, we talked about testing terminology. So we talked about total cannabinoids, total THC, potency, and THCa. I don't know if we need to go there at this point, but standard units. I think we were talking about milligrams, parts per million, any connection we can make there. Anything from this discussion that we can add to the creation of more additional words that we need to put into our thinking? Doesn't sound like anything at this point.

And then this final question on the agenda. Let's talk about data holes. What are we missing? And what do we need to look for in order to create these proxies? I know we've talked about that a little bit, but let's talk about that a little bit more. What are the data holes? And can we identify some of them now during the conversation?

Jessica Tonani: I think we haven't necessarily dove into what might be a good proxy. I do think that especially on the edibles there are probably good plant proxies out there. And so just once we identify the proxy, determining what the holes are that exist, I think concentrates may be an area that we have

a pretty decent data hole in. But I could be wrong on that. I also think that we probably have less data than we think on what safe soil is for this crop. And that there's the ability, especially with hemp in WSU or Eastern or one of our egg schools, to actually grow in contaminated soil and measure and determine what those thresholds are. So I would say, that's a pretty big data hole. But it is something that I think, if we were looking at like what we might be able to do as a state and accomplish and actually move the industry forward to enable safer grow. I think that's a data hole that we have we actually probably could fill in.

Kathy Hoffman: I want to turn to some of the LCB staff that are with us today. Any questions from LCB staff that we'd like to offer before we move on to the next discussion topic?

Justin Nordhorn: Hi, Kathy. I'll jump in. The issues around tobacco that I would encourage folks to be thinking about are related to we've seen some comparisons, particularly recently with the DDX issues around thresholds for tobacco versus cannabis. When we're looking at products, it goes back to the previous discussion and comments that were made on types of products. I think there definitely needs to be some bifurcation between the inhalable that are combustibles versus other types of products that are concentrated because there is definitely going to be a different threshold. So I know that's probably in your minds already, but I wanted to put it out if some folks weren't thinking about it because I really appreciated that earlier comment that different product types are going to be viewed and affect people differently based on that product type. So thank you.

Brad Douglass: In response to Justin's comment, I think there are certain examples or case studies of how compounds can be safe for ingestion and not for inhalation but also when it's inhaled when it's not combusted versus a compound that's combusted and what can happen to those compounds. Myclobutanil is one example of a pesticide which can combust and break down into hydrogen and cyanide. Vitamin E acetate was another example of a compound that is perfectly okay to be ingested, but when it's combusted or heated to a high temperature can have degradation products that are harmful. That's one approach we may take is that known compounds when heated to a high temperature or combusted can degrade products that are problematic. We can highlight those for specific differences between ingestible products or inhalable products.

Kathy Hoffman: Thank you for that, Brad. All right, any other discussion before we move to the next topic for today? And no other comment from LCB staff?

Cassidy West: Not at this time.

Production/Farming Guidance

Kathy Hoffman: Okay. So let's go ahead and move on to the next topic. And that was Production and Farming Guidance and to just touch back on the human safety guidance. I think it sounds like we're in the very early stages of kind of thinking about that and how we're going to separate that out and what kind of recommendations this group can make to LCB and others about how we might approach that. Jessica, I am going to hand this over to you once again because you started to talk about this. How does the level of the contaminant in the soil affect floral contaminant levels? I think that's a really interesting question. I'm very interested to hear what folks have to say about that.

Jessica Tonani: My thought is there is a lot of urban legend, and there is potentially may be some truth to the urban legend about cannabis accumulating some of these compounds, but it may not accumulate all of them. And so it'd be really good if we actually did what people do on other crops was just essentially correlate the soil to the product that's being produced and consumed by humans. It may be that cannabis could be grown on certain levels of contaminant and still produce extremely safe floral material, or it may be that very small levels lead to unsafe floral material. And I just don't think that we really have a good handle on that. And it would be, I think, hugely valuable to our producers, which quite frankly are just really farmers, and they are farmers that don't have the ability to do what other farmers in the state do, which is determine what safe soil is, so they can make safe products.

Right now, safe soil is nothing in it, which, unfortunately, we don't have a lot of that soil left in the US to grow on. So I think the goal is safe products, and it would be really good if we could actually help enable our farmers with what safe soil looks like to grow safe product. [Cross-talk] And I think we could do it. That's the other thing is I think we could do it. I think with hemp right now, we could grow hemp in contaminated soil and look at what happens to the floral material and look at accumulation levels. I think it would take some grant money somewhere somehow, but it's not a project that's out of the reach of what we could accomplish.

Taylor Carter: I'll jump in on that. I think a tough part about that, when it comes to some plants and finding a comparison is -- like with hemp, the stem itself doesn't really hold a lot of the heavy metals. So if you were just looking at, say cadmium, it's going to have higher concentrations in the leaves, then the roots, then the stems, then the seeds. So you'd almost have to do an exact study on the exact thing you're looking at in the exact situation because any sort of comparison in any sort of dynamic you are going to see a shift. And then you may take an assumption like, the stem was fine. There's not much cadmium. But if you would have actually had a floral sativa plant, and there's a lot of cadmium in the actual flower, but you miss that. So I think the ability of cannabis to uptake these metals and where it actually places them, there is a lot of good literature over the last two years that I've looked over. But

it's definitely going to be a tough road to venture on based on the ability of the plant to distribute the metal unevenly, which you're analyzing the outcome.

Jessica Tonani: I hear you, and I agree, Taylor. And I think that's why we would have to probably limit it to like oil-producing hemp. The CBD varietal and then look at the floral material or something like that. Be very clear on we're looking potentially at this floral material for that's analogous to what people are consuming in this market.

Brad Douglass: I think you bring up a good point, Taylor, in that there is decent data about hemp being a metal accumulator. Are you aware of any data showing hemp to be even by class a pesticide accumulator or any other classes of compounds aside from metals? So that work from Dr. Maxwell Long at ASU, he basically was showing the ability of the plant to hold on to some of these pesticides. And again, he was looking so far downstream at the actual neurological effects. So I don't know if the data is clean if the metal [indistinct]. There are a lot of scientists who look at metal just as kind of like the tell tail of how it is distributed. Is it absorbing everything because it can be done in the lab setting? I don't think the pesticide data is as clear. So I don't think there can be a direct comparison between the two. I think that's the area where the gap is.

What's the effect of these pesticides on the soil? What's the effect of some of these other compounds that if we know that it's distributing the metal, there's similar pathways that it's utilizing to distribute some of these other -- or absorb some of these other substances.

Kathy Hoffman: I'd love to hear from others.

Brad Douglass: I'll ask Jessica. Do you know if there are any state programs or anybody else, are there state programs to do what you describe for other crops?

Jessica Tonani: I think a lot of the Commissions did a lot of this work, and they've just been growing so long that I don't know who along the way did them. But I do know that there are a lot of thresholds on what crops should be grown and what soil because the reality is a lot of crops are grown in contaminated soil. And like I said, most of our soil does have something in it at some level. So I'm not sure who did it, I think probably USDA and then some of the Commissions along the way. But I don't know if David Gang was able to join us. He would probably know the answer to who did the research.

Kathy Hoffman: I don't believe I see him. I think we'll have to reach out to him afterward. Brad, do we know if other states have done this just going outside of Washington?

Jessica Tonani: I've talked, but I mean it would be good to continue the outreach. But I've talked to a number of the west coast states, and I haven't seen anything. But that doesn't mean it doesn't exist.

Kathy Hoffman: Okay. And then if everybody could move on to the next question. Are there any studies we could explore doing in the state on hemp in with our local universities? That means accessing larger testing networks across state lines to help generate that data. And again, I think that David could help us there. But Tracy, any insight you could offer there?

Tracy Klein: No, Kathy. I'd have to defer.

Kathy Hoffman: Anyone, in the states that you're in, are you aware of any kind of studies that your local universities are doing on these types of questions at all? Or is it Washington? It's hard for me to believe it's just Washington asking these questions.

Jessica Tonani: I'd like to say that the reason I think I was the one that tossed out the hemp on this is that you can send it across state lines in some of these for testing for some of these pesticides in order to get more than one lab to test it so that you can confirm your test. Oftentimes, it does require sending it across state lines. And so that was the rationale for maybe why we would do some of this on that.

Kathy Hoffman: On the hemp plant. Yeah, that makes sense. Okay, Holly, just put something in the chat where she says we could check with the Soil Science Society of America. That's a potential pathway forward, but I'm happy to check in with that entity. Turned to LCB staff right now. Any additional follow-up questions that you would like to offer from LCB staff?

Cassidy West: Cassidy from the LCB. I don't really have any questions. But I did want to follow up to let you know that I found some research or risk assessments that FDA and USDA have done on using different inputs for soil, like raw manure, for example, and ensuring that is safe for public health. And so anyway, I think that stuff may be helpful to pass along to the group. That's all I have.

Kathy Hoffman: Great. Thank you, Cassidy. Before we move on to the discussion about any detectable amount of THC and 5367, before we close down this part of the discussion about human safety guidance and production and farming guidance, it sounds to me like we're not at a point where we can really start framing guidance in this discussion today. It sounds like we need to do some more research to kind of get our arms around what that guidance might look like. Am I off on that? Or is there any additional discussion that we want to add there before we move on?

Nick Poolman: I was just going to jump in Kathy and say I think it goes back to an earlier conversation we were talking about the closest proxy. I think it's a similar problem. Food deals with this problem a lot in food testing, where you say, Hey, I have a new food. What is the closest thing I can compare it to that I do know how to test for? Right? So a comparison that does get made a lot for cannabis I hear in terms of matrices, we do have knowledge about avocados and hops, hops being a close relative and avocados being high in fat content, which THC is fat soluble. The cannabis plant is generally pretty fatty, so they do have different growing systems. Typically, the plants are a little bit different, but when you're making these comparisons in foods, you're looking at which foods have similar fat content or carb content or water content that I can compare it to.

So it's not to say research directly on cannabis wouldn't be ideal, but if you can look at plants that may have similar outcomes or similar product types, you can at least start to get a narrowing of the pathway you need to be on.

Kathy Hoffman: Okay. Others want to respond to that? Go ahead, Jessica.

Jessica Tonani: I was just going to say that I think that's a great idea. The only thing I would say is we have to also remember that we have a 10 mg cap on edibles. So 10 mg is going to be very different than consuming a whole avocado. And so the 10 mg the edibles, I think we just really need to continue to remember the cap on the concentration or the amount that can be in them and how that correlates to safety. And I guess the other thing I was going to say is it would be really good if we maybe could make a plan to begin to look at the product classes, figure out a table to break that out and actually get -- if that's the path we want to go on -- beginning to do it. I don't know if it's a path we want to go on, but if we do, actually start looking at what that looks like.

Kathy Hoffman: I really appreciate that suggestion, and I would like to continue that because I like that approach. Just my opinion. What do others think? Where we can start creating a table that says for "x," here's how we want to approach human safety guidance for this particular product. And that could be we can start with the three we have got here, flower, edibles, and distillate. How does that sound to the group?

Brad Douglass: [Cross-talk].

Kathy Hoffman: Okay. And that's something that I can start putting together between this meeting and our next, and we can really start sinking our teeth into that in the next meeting, and perhaps in between meetings start filling in some of the material that we would want to have in that table or that we want to consider in that table. That's a great step forward. And thanks for that suggestion very

much, Jessica. Really appreciate it. All right, before moving on to the final discussion point here, just checking in with everyone. Have we any other comments to offer?

Ryan McLaughlin: -- underline another thing Jessica said there, and that's the importance of exposure for different products or different things that you can be exposed to. I think we shared via our email chain the limits that are allowed in salmon, for example, for particular pesticides, and how you compare that to the amount of a pesticide or other contaminant that you get from consuming an edible. I think it's important for us to -- especially if we are creating a table -- to have sort of a daily or expected serving, so we understand the landscape of other exposures for particular contaminants. Because it's probably going to offer marginal benefit to focus on a small source of exposure if everybody's eating contaminated lettuce in large salads. So it's just important for us to keep this. There are going to be orders of magnitude difference in different exposures, so that should definitely be part of our conversation.

Kathy Hoffman: Thank you for bringing that up. I think the other thing that we can start doing in these tables is beginning to integrate some of the nomenclature that we've put together and adding meaning to those words as well. I think this is a nice way to bring all of that work together up to this point so kind of begin to culminate some of the discussions that we've had into one table. That can be very helpful. I know I keep kind of getting us to this precipice, and then there's more thinking, which is great, and what we want to see that happen. Any other thinking that we want to share before moving into the final discussion topic? Richard. Please.

Richard Sams: Yes. USP 232 has an excellent discussion that relates to the difference between daily exposure based upon differences in how much we consume, differences between apples and peaches and other items. And then how that gets converted into an action limit or a threshold based upon route of administration of a pharmaceutical. The discussion there centers around heavy metals, but it's applicable to what we've been talking about. Again, that was USP 232.

Kathy Hoffman: Thank you very much for that. That is very helpful. Okay. Anything else? All right. If anything comes to mind, please feel free to send an email. And, of course, we'll have discussion in between meetings. So, again, thank you for that really great discussion on those first two talking points. And it looks to me like we're headed in the right direction on creating some guidance here at least preliminarily, so that's a good thing. So I'd like to move into our discussion on "any detectable amount of THC." And to sort of frame that discussion, I'd like to invite Justin to join us, talk a little bit about the history of the bill since he was there making it happen. So I'll just hand it over to you, Justin, to kind of frame the conversation.

Discussion of Washington state Engrossed Second Substitute Senate Bill (E2SSB) 5367

Justin Nordhorn: As folks know, 5367 passed this year with this undetectable amount of THC in the definition thresholds. So just to kind of back up. You know the first year that we put something out is very complex. We reframed that last year's legislation and really focused -- we shrunk the focus down to the intoxicants for the delta-8 and those types of things. And so the proposal that we put out had a threshold that would allow for THC in products to a limited amount. And then through the course of the legislative conversation, it went down to zero. And then we even explained to folks zero doesn't work. And so there was some accommodation even on that. And so they ended up passing the bill that said, basically, cannabis can be anything now with a detectable amount of THC. And then the hemp consumables can have no detectable amount of THC.

So our position does not necessarily align with how the bill was ultimately passed. We do believe it's going to be beneficial for the youth access provisions out in the open general market in the stores of keeping any type of THC out of the hands of kids, however, it probably went a little too far. So one of the things that we need to be thinking about is what makes the most sense when those topics come back up at the Legislature and be able to really have some scientific discussion behind what these amounts and limits really would mean. So at this point in time, one of the things how we crafted some of the language brought in a couple of components. I'm not sure if they're all relevant here, but we carved out exceptions basically for anything approved by the FDA. So if it's approved by the FDA for things like hemp seed, hemp seed oils, those types of things, that's not going to fall under the regulatory provisions of the LCB as it's already been approved.

So we try to build some of those carve-outs in there for the existing product. And then the other thing that we're not trying to engage with is the fact that hemp, when it's determined to be hemp or cannabis, in our state is 0.3% THC on dry weight, so we weren't trying to adjust any of that. So when the hemp is being grown and being harvested, of course, it has detectable amounts of THC. That's just the natural state of that. So we're really primarily looking at what is being sold to the consumer at the point of sale in the stores out there. And if it has detectable amounts of THC in those products, that's where it would have to be regulated. But we understand that when people are making, let's say, even a broad-spectrum product, theoretically, I know people will say that there's THC in those, but what's being advertised to a lot of folks is, it's a full spectrum product with all the THC removed, and that's what you end up with is this broad-spectrum product. So if you can create a product that has no THC for sale to consumers, then that's not going to fall under the regulations of the LCB.

That said, in order to get to that point, we recognize that there's going to be product in the manufacturing process that has THC in it. And so we really need to figure out what's a good pathway forward. And I'm not sure that the LCB can resolve this on its own. The Department of Agriculture is not going to be able to resolve this on its own because there are no provisions set forth in the statutory

language that says an agency by rule is going to be able to adopt something that is going to be a standard for the state. A lot of folks were asking us about the issues around being able to define something by rule. And when we define something by a rule or we create a rule within the framework of the LCB, it applies to our businesses that are licensed by us versus applying to anybody in the state, so only statute can do that. So whether it's us or another agency trying to create a rule, it's only going to apply to a certain group of people that fall under that administrative authority.

So I think this is really going to require some more legislation to get a fix, and I would say fairly confidently. I mean, we haven't fully discussed this with each of the Board members, but I think that we would be open to solutions that would really recognize both of those industries, without putting intoxicants in the hands of younger folks in the unregulated market space. Right now, it's more restrictive than what we thought, and I wanted to frame it in this particular way, so folks understood that this isn't something that the LCB was seeking as far as having this really low or no detectable amount of THC. We thought it would be appropriate to have a threshold in there. And so that said, How are we going to be looking at this? I think from a practical standpoint, when we get complaints or we're seeing how advertising is -- particularly advertising that people put on their label Contains THC, we're going to have that tested, and if it has any amount of THC in it, it needs to be regulated and sold only through a licensed business.

So that's really what we'll probably be focusing on. And that could come into play a little bit in a few different ways when you're talking about criminal investigations and those types of things, as well, where I think a lot of times you're going to be looking if there is actually somebody who's manufacturing something intended for sale on a larger scale, there's going to be some intent behind that. And I think we'll be able to see those differences. So I wouldn't recommend getting too much into the minutiae on what that's going to look like, but how do we move forward on what that looks like? Because we know from a scientific standpoint that lab testing has variables of uncertainty, therefore, zero just doesn't work. And so how do we quantify no detectable? Well, if it hits -- well, we have to have a standard because not every lab can test to the same levels. And so if somebody were to say, Well, my level is 2 mg, and if anything below that, we just don't even test for so it's non-detectable. Well, that's not doing the licensee any good because, of course, we'll be able to detect that in other areas.

And so what is a good standard that we should be looking at? What is a good reasonable application of this particular provision without trying to trump the RCW? Because we can't do that. So that's kind of where the conversation. We would appreciate some feedback around that.

Jessica Tonani: Justin, it was my understanding, and it might be inaccurate, that there was going to be essentially at a non -- what that threshold for detection was would be set in rules. It's very similar to --

like I tell people it's like telling people don't drive too fast. What does too fast mean? There's a speed limit. And right now that there's not a detectable -- what a detectable limit is. Is that detectable limit -- do you guys feel that you guys can't set that detectable limit?

Justin Nordhorn: Yeah. We wouldn't be able to say, specifically, in our rule set that at this particular point is the detection level. We may have something that says we expect labs to test down to a certain standard, and so then we're not looking at the other stuff. But at the same time, if we were to say you can have up to let's say two parts per million in a level. Well, if it's one part per million, it's still detectable, and that goes against RCW. And so we would, I think the better strategy for implementation and approach is to say, okay, let's have a common standard that labs would test down to, and then we're not going to necessarily dig deeper on some of these other areas, I guess. But we can't do it by rule. We can't come out and say, here's a number because if there's a number, it's detectable. So that's really a challenging aspect. And it's really going to take all of you to help us figure that provision out because that is not really where we wanted to see the bill end up. And this is very much more complicated than we would have liked to have seen it.

Jessica Tonani: I completely understand. The reason that I asked is, as you know, different equipment and different labs are going to have different thresholds. And so I think the concern is if somebody tests a product at a specific lab and they are working off of a certain data set that this is what it is. My product doesn't contain THC kind of report, and then it's tested on more sensitive equipment. My understanding was there would be some sort of -- and it sounds like what you're thinking is like labs have to test to this detectable limit. I guess my concern is inversely if a lab test on more sensitive equipment where that liability falls. Does that make sense?

Justin Nordhorn: Yeah, and that's why I think it's really important to coordinate this with the Department of Agriculture because any tests that we conduct for an investigative purpose is through them. And so if they can detect it, we need to understand what those levels are. What are they testing to? And then some labs, if they're not able to go that low, then they may be wanting to at least disclose that to their customers to say our equipment only goes down to a certain level, so buyer beware, in a manner of speaking that this may not necessarily be the result that is going to be the be all end all if it actually gets tested later downstream. So, I think it's really important to understand where AG is on this. And I think it's important to understand how the science works when we're talking about how the lab testing is done. The sensitivity of equipment. What does that mean? What does that look like? And what's reasonable in the application of this particular provision? I think the intent is let's not have this stuff in an unregulated area, and let's not have it going to kids. And so, okay, how do we keep that? We have a safe product. What does that look like, and where should we be at a standardized approach?

Richard Sams: I live in a state in which hemp is allowed but cannabis is not and, therefore, we often test samples that are hemp. And in many cases, we're looking at the delta-8 THC products. We see test results for delta-8 THC products that were obtained by HPLC analysis with UV detection, and the THC is reported as non-detect. When we analyze the same material using GCMS, a more specific or selective detector, we invariably find residues of delta-9 THC, oftentimes higher than 0.3%. So we're not just talking about sensitivity of detection, but we're talking about selectivity of detection. And it's really critical, particularly with regard to determining low concentrations of delta-9, particularly in some of these CBD conversion materials like delta-8.

Jessica Tonani: And Richard, in Washington, our delta-8 is now falling essentially under delta-9 rules.

Richard Sams: Okay. So then are they added together?

Jessica Tonani: Yes. They are added -- THCs Justin, you may be able to explain the role better. But all of the THCs are not allowed.

Justin Nordhorn: Yeah. So when you're looking at the totality of the THC concentration, it would be any type of THC. And one of the things that's really challenging in this space where you're looking at hemp versus a cannabis plant and the products coming from it, we know that delta-8 is in the plant naturally. So, okay, there's going to be potentially something. The state's policy was trying to prohibit the conversion and synthesis to these intoxicants. And so, okay, what is this minute level that would not be harmful of these compounds that are natural in the plant versus what is out there potentially going to be at more risk? And so that's really why we were approaching with a threshold conversation because we recognize that there are some of these compounds in the plant. But that's not how the legislation came to pass, and so now we're stuck dealing with the unintended consequences of this legislation now are, and how do we implement this to meet the spirit of the statute while still being reasonable?

And how do we create a standard and a threshold? And going back to my previous comment that the 0.3% is still the threshold for determining what hemp is. And so we're also just predominantly trying to shift the conversation to look at the end product. And so we don't necessarily want to say let's split the hairs on the product as it's being determined whether it's hemp and that sort of thing. It's okay. You've got your hemp product, and you're bringing it to the market. So if it's got THC in it still, that's not allowed. If it doesn't, then it's allowed, that kind of thing.

Richard Sams: Selectivity or specificity of detection is still critical because we often look at remediated material. Some laboratories will report non-detect on THC. And using a more selective or specific detector, we find residues of delta-9 THC in those remediated materials. So let's include specificity of detection in this discussion that includes sensitivity of detection.

Tracy Klein: So this is just a language thing, so maybe Justin can address it. But where do transdermal products come into this? Because it doesn't say, "intended to be consumed or absorbed inside the body by any means, including but not limited to ingestion, inhalation, or insertion." So I'm just curious about that. [Cross-talk]

Justin Nordhorn: Sure. So there are a couple of carve-outs that we tried to build and one going back to the FDA issue. So when some of those types of products may be some sort of a biosynthetic that has been approved by FDA, and if that's the case [cross-talk] --

Tracy Klein: No, they're not.

Justin Nordhorn: [Cross-talk] -- we're not going to care about it.

Tracy Klein: They are sold in dispensaries.

Justin Nordhorn: Yeah. And so if you're [cross-talk] looking at things like topicals and what we call health and beauty aids [cross-talk] --

Tracy Klein: No, it's not topical.

Justin Nordhorn: -- those are actually carved out, too.

Tracy Klein: It's a transdermal patch. So those are a totally different kind of thing. That would be like a fentanyl patch. There are pharmaceuticals that are made that way. But those products are sold in dispensaries, and they are not topical, and they are not FDA-approved.

Justin Nordhorn: Sure. So for those types of products, those would fall out -- that would be outside of the exceptions that I mentioned. They would only be allowed to be sold through a cannabis-licensed business. And so it's not that they would be completely out of the question, but they would have to be produced and processed and sold within our state's regulated cannabis marketplace. And so if you're a hemp farmer and you're trying to make those things, that would not necessarily fall under the legal approach that's been put forward in this particular bill. But if you're a licensed cannabis producer, then that would actually be still within the realm of possibilities.

Holly Moody: I was going to say when Richard was talking about testing hemp material in HPLC vise in a GV, what you're doing there is converting that THC acid. You're decarboxylating it at any time you hit over 220 Fahrenheit. So I mean, technically from the way I understand it, the actually growing plant does not have any delta-9 THC. It's all in the form of THCa. And that's a potential stumbling block

because if all your labs are testing it by GC, which is the way we used to do it back in the forensic world, any sample that came to us was only ever reported as delta-9 THC. It was never reported as a mixture of THC acid and delta-9.

Jessica Tonani: Yeah, and we do have a total THC equation here. So we do account for that if it's not decarboxylated.

Richard Sams: We use BSTFA derivatization before GCMS analysis, and that preserves the carboxylic acid moiety. So we differentiate by that derivatization process.

Nick Poolman: Yeah, none of our labs in the State of Washington are using GC. They're all using LC analysis for cannabinoid concentration.

Holly Moody: I'm also talking 20 years ago -- I apologize on that -- in the forensic world.

Brad Douglass: In listening to Richard speak about sensitivity, I was wondering whether a couple of examples might be illustrative of the difficulties of sensitivity across product types. And the two I would offer would be a hemp concentrate that has 1 mg of THC in it, called 1 gram of hemp concentrate, and then a hemp beverage, call it 500 mL that has 1 mg of THC in it. When you're thinking about the limits of your detection method, your analytical equipment, what do you think about when you see those two different samples when you're looking to not only detect but quantify the amount of THC that's in those two?

Richard Sams: We use an internal standard method. And so we adjust the amount of material to start with based upon label claims and add an appropriate amount of internal standard. Most of the sample prep is merely dilution, and we aim to have about the same amount of cannabinoid injected onto the column in the GCMS instrument regardless of the sample type.

Brad Douglass: Okay. Would trying to detect 1 mg of THC in 500 mL of liquid give you heartburn as a lab? Or you don't see that as a technical challenge?

Richard Sams: No, it's somewhat more challenging. If we're faced with that kind of situation, we would extract the cannabinoids using a liquid-liquid extraction procedure.

Brad Douglass: Okay. It's yours.

Cassidy West: I was wondering if there would be a way to detect and differentiate between delta-8 and delta-9 or delta-10?

Richard Sams: That's readily accomplished by GCMS methods. It is particularly challenging by HPLC with UV detection, and it's difficult by LCMS as well because there are impurities in delta-8 that coelute with delta-8 and with delta-9, and they can't be differentiated by mass spectral methods, but they are readily separated by GCMS methods.

Cassidy West: All right. Thank you.

Richard Sams: You're welcome.

Jessica Tonani: I guess in my mind for the discussion purposes, it might not matter if they're differentiated because we cluster them all together. And the biggest issue is if our labs are all HPLC-driven, what thresholds can they accurately detect? And what should that threshold be? I mean, I think in another task force I was in on this subject, the question was What can labs do? and What is safe for humans? And I think that we're now down to the What can labs do? discussion. And I don't know where that What can labs do? discussion goes or even, actually, who regulates the What can labs do? portion of it. Does that make sense? Am I looking at this correctly?

Cassidy West: Yes. From my perspective and what I was trying to get out from rulemaking, yes. Thank you. That was very helpful.

Brad Douglass: Yeah, I would agree with that, Jessica. I think the question is what can labs do? But what can labs reliably detect? And what can labs reliably not detect? Right? Because anybody who has spent any time in a lab knows that when you know, a sample needs to be perfect, you can do a lot more than if it's lined up with 200 other samples, and you have your new analyst working the balance, and any number of factors that can contribute to error in the lab. But I think that the question of what labs can do on a reliable basis is important when defining what any detectable amount is.

Justin Nordhorn: Yeah, Brad, I think I think that's really important. I'm glad you utilize that terminology there because I think that could be something that we build into standards, and then have some collaboration or agreements between the multiple regulators that are somewhere around this. Because I think that's what everybody probably wants is. What is the unified threshold? What's a standard that we can look at? So if we're talking about the reliability results, I think that's a good starting point for that, and I appreciate that perspective.

Richard Sams: The AOAC has published a validated method that is well characterized based upon HPLC with UV detection. It's suitable for determining, I think,18 or so different cannabinoids in plant material and other matrices. So since that is an approved method by the AOAC, that may be a good starting point.

Justin Nordhorn: Great.

Kathy Hoffman: I'll reach out to you for some information on that if I may, Richard.
that?

Justin Nordhorn: I think in the discussions moving forward, there are a few things that also need to be considered. Of course, we want to look at the reasonable application of law. How are we going to look at these reasonable standards on test results? But also we are focused right now on regulatory approaches in matters. And I think one of the things that's left out sometimes in these conversations is when local law enforcement gets involved, they have criminal standards to be looking at. And so it's going to go to a completely different lab. And then they're going to be looking at the technical issues of law. And so I think we need to figure out how we bridge some of that conversation with our Crime and Tox labs as well as our regulatory labs like the Department of Agriculture and even the private labs. And so if we can have common language, common understanding, and some standards that are in place on how we're all going to be able to determine different issues, that's going to come into play.

The RCW, unfortunately, is going to be a lot more tricky when you're talking about the technical aspects. And so I think that we need to be as we are moving this conversation forward, we need to keep those things in mind and have some considerations around what that looks like and get that feedback from those folks, as well.

Holly Moody: Maybe you bring in some of your analysts from the state, your State Patrol Lab, or State Department of Law Enforcement, and maybe they can help on some of it because they're going to be the ones that are the experts on what the law in the state is and how it relates to their analyses.

Justin Nordhorn: Absolutely.

Kathy Hoffman: I noticed that we have David Northrup from Washington State Patrol listening in today and offering some questions in the chat, some comments in the chat. So yeah, we have some folks we know that we can reach out to. So thanks for that, Holly. I really appreciate it.

Holly Moody: No problem.

AGENDA ITEM 4: WRAP UP AND NEXT STEPS

Kathy Hoffman: Justin, thanks so much for joining and leading that part of the conversation, providing the context around the legislation. I forgot to mention at the beginning of our discussion today that the majority of the group reached out to ask that we could extend our time together by half an hour. And I think today's discussion is an example of why that's important to do to give ourselves some extra time to talk through some of the topics that we would like to bring up in our discussions.

So next steps, same as usual. We'll go ahead and get out the meeting minutes following this discussion today. And I also am going to begin to put together that framework for these additional topics that we talked about with respect to human safety guidance, I'll start putting that table together and share it with the group in a few weeks, so we can start filling in content, asking questions. For those who offered resources, I'll be reaching out to you just to follow up and make sure I've got links to those resources. I'll try to find them myself. If I can't, I'll reach out to you for follow up. Or if you are inclined, go ahead and send links my way, and I'll share them with the group. Thanks again very much for a great conversation today. We will see you again in August.

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