Attachment 1

From: Sun and Craft Membership
To: LCB DL Rules
Cc: Postman, David (LCB); Garrett, Ollie A (LCB); Vollendroff, Jim (LCB); caitlein.ryan@thecannabisalliance.us; Micah Sherman; JeremyMoberg (LCB External)
Subject: Petition to change rule regarding QA testing expiration periods
Date: Monday, October 30, 2023 10:04:34 AM
Attachments: QA rule expiration petiton supporting doc_190.30.23.pdf
QA expiration rule petition_10.30.23.pdf

External Email

Attention LCB Rules Coordinator,

Please find the attached petition to change rule 314-55-102 (9) and supporting documents. Feel free to reach out if you have any questions.

Sincerely,

Washington Sun and Craft Growers
The Cannabis Alliance

PETITION FOR ADOPTION, AMENDMENT, OR REPEAL OF A STATE ADMINISTRATIVE RULE

Print Form

In accordance with RCW 34.05.330, the Office of Financial Management (OFM) created this form for individuals or groups who wish to petition a state agency or institution of higher education to adopt, amend, or repeal an administrative rule. You may use this form to submit your request. You also may contact agencies using other formats, such as a letter or email.

The agency or institution will give full consideration to your petition and will respond to you within 60 days of receiving your petition. For more information on the rule petition process, see Chapter 82-05 of the Washington Administrative Code (WAC) at http://apps.leg.wa.gov/wac/default.aspx?cite=82-05.

CONTACT INFORMATION *(please type or print)*

Petitioner's Name: Jeremy Moberg

Name of Organization: Washington Sun and Craft Association (WSCA)

Mailing Address: PO Box 57

City: Riverside State: WA Zip Code: 98849

Telephone: 509.322.4772 Email: membership@sunandcraft.org

COMPLETING AND SENDING PETITION FORM

- Check all of the boxes that apply.
- Provide relevant examples.
- Include suggested language for a rule, if possible.
- Attach additional pages, if needed.
- Send your petition to the agency with authority to adopt or administer the rule. Here is a list of agencies and their rules coordinators: http://www.leg.wa.gov/CodeReviser/Documents/RClist.htm.

INFORMATION ON RULE PETITION

Agency responsible for adopting or administering the rule: Liquor and Cannabis Board

☐ **1. NEW RULE - I am requesting the agency to adopt a new rule.**

☐ The subject (or purpose) of this rule is: _____

☐ The rule is needed because: _____

☐ The new rule would affect the following people or groups: _____

☒ **2. AMEND RULE - I am requesting the agency to change an existing rule.**

List rule number (WAC), if known: WAC 314-55-102 (9)

☒ I am requesting the following change: That the expiration date be extended from 12 months to 18 months.

☒ This change is needed because: See attached.

☒ The effect of this rule change will be: See attached.

☐ The rule is not clearly or simply stated:

☐ **3. REPEAL RULE - I am requesting the agency to eliminate an existing rule.**

List rule number (WAC), if known:

(Check one or more boxes)

☐ It does not do what it was intended to do.

☐ It is no longer needed because:

☐ It imposes unreasonable costs:

☐ The agency has no authority to make this rule:

☐ It is applied differently to public and private parties:

☐ It conflicts with another federal, state, or local law or rule. List conflicting law or rule, if known:

☐ It duplicates another federal, state or local law or rule. List duplicate law or rule, if known:

☐ Other (please explain):

To: Liquor and Cannabis Board Rulemaking Coordinator
From: The Washington Sun and Craft growers Association and The Cannabis Alliance
Re: LCB petition to amend State Administrative Rule WAC 314-55-102 (9)

This is additional information to support a petition to amend rule WAC 314-55-102 (9). The current rule requires that QA testing expires after a 12-month period. This petition seeks to extend that 12-month period to 18 months. This change is needed because the current 12-month period creates an unnecessary burden on farmers that grow outdoors and whose crops are planted and harvested seasonally. The problem that the 12 months period creates is that given the seasonal variability of harvest dates a farmer will likely not have harvested the next crop prior to the last harvest QA test expiring. This creates a situation where a farmer may not have sellable crops or strains between the time that the new crop is harvested and the QA test for the prior year's crop is expired. Given the variability of growing crops this may be a significant amount of time. This creates a clear disadvantage for outdoor farmers. Changing the expiration date of the QA test to 18 months would reduce the negative impacts to farmers without any effect on consumer safety.

A recent example of the burden this rule poses to outdoor farmers follows. A farmer harvested in the fall of 22' after the rulemaking was adopted in the spring of 22'. The farmer harvested in mid-September and had the crop dried and ready for testing 3 weeks later. This QA test was received on October 5, 2022, and expires on October 5, 2023. However, the following years crop came later in the year and was not harvested until mid-October and was tested by mid-November. This creates a significant period of time that this farmer would not have product to sell. Retesting the prior year's product is not allowed by rule and this farmer would not be able to continue to generate revenue to keep operations funded.

Another example is a farmer that uses light deprivation techniques and harvests different strains at different times during the harvest period between July and November. A unique strain that

this farmer relies on for a significant portion of its revenue has an expiration date in July but is not expected to harvest this strain until late September, leaving the farmer without the ability to sell this unique strain for a period of time that is critical to their revenue and operations. Of course, we all know that farming is intrinsically variable and by allowing 18 months for a test to expire would allow for seasonal variability between harvests and prevent these scenarios from occurring.

We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule.

Public Comments Received on COA Petition

Number	Comment on COA Expiration Petition
1	**From:** Matt Bernhard <matthew@lazybeegardens.com> **Sent:** Wednesday, December 6, 2023 10:05 AM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** experation date External Email To whom it may concern, My name is Matthew Frigone, I am the owner of Lazy Bee Gardens. We are a tier 3 producer/processor located in Winthrop Wa. I was told Postman wanted to hear some comments in regards to the 1 year expiration date on tested product. As a licensed producer I can say the 1 year expiration date has caused a lot of problems for us. Being we are a sungrown farm we do not have consistent crops coming down over the course of of the year like indoor does and it feels like this current rule really only hurts sungrowers the worst. I would also like to mention in all the years we have been testing, we have never seen a result change after time. I have a friend's farm that tested a 5 year old flower lot and it had only lost 1% THC in that time. No change in mycotoxins or pesticides. I've never seen something that passed pesticide and mycotoxin testing later end up testing hot. It seems really redundant to have to retest things that do not go bad in that manner. This becomes an even bigger problem for concentrates. I just had to spend $3,500 to retest concentrates that were made last year. With the condition the industry is in and how hard it is to survive these market conditions as is, it is really unfortunate for smaller operators to be punished in this manner. The mega operators have the ability to move things much faster than the smaller outfits and having our results expire is negatively affecting sungrown and smaller operations. As is, the big players have the ability to sell at a cheaper price than smaller operators as well, if the smaller operators also have to spend double on testing due to expiration it further depresses the market for the smaller operators. As far as I can find there is no science that supports the arbitrary expiration date of 1 year. If anything concentrates should be allowed a minimum of 2 years. Either way it is frustrating to see something like this adopted with no science to back the play. No study can show that cannabis somehow becomes bad after 12 months. Old products works its way out of the market on its own by going bad in general (looks and taste). I think it is also important to note that there is no public safety concern with cannabis that is over 12 months old. If it is not a public health issue, why is it being enforced? I would ask the rules committee to consider extending this period to allow for either 18 or 24 months before expiration. This would relieve a lot of stress off of smaller operators who are struggling to float in this market. Thank you, Matthew Frigone (509) 429-4265

2	**From:** Jeff Wilhoit <jeff@puffinfarm.com> **Sent:** Wednesday, December 6, 2023 12:08 PM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Extending COA expiration dates External Email **Dear Rules Manager,** Thank you for bringing an update on the petition to extend cannabis COA expiration dates to the board. I am writing to voice my support for this proposal as it will provide our business with some greatly needed relief. The current rules have drastically changed the way we test cannabis and extracts and have led to increased costs for testing products that have expired COA. Cannabis extracts in particular can be stored in the freezer and do not change much at all over the course of a year. I would love to see an extension or removal of the expiration date on COA so that we can keep our costs down. The safety of cannabis is now very well examined by the addition of pesticide tests in the current rules and over the course of a year that the COA is valid for there is no increased risk of pesticide contamination and there is very little if any (depending on how the cannabis or extract is stored) degradation of the cannabinoids. Please keep me informed if you have any opportunities to converse with the LCB so that you may better understand from a producer-processor point of view the costs and benefits of extending or removing COA expiration. Best Regards, **Jeff Wilhoit** Director of Extracts Cell: 206-550-1914 Office: 206-285-0949 Jeff@puffinfarm.com
3	**From:** Chuck O'Brien <mtnmash@gmail.com> **Sent:** Monday, December 11, 2023 2:21 PM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Please the accept petition to extend the QA expiration period to 18 months. External Email Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule.

	Sincerely, Charles O'Brien Canna-Med LLC 417316
4	**From:** Stephanie Wilson <pacificnwgrowers@gmail.com> **Sent:** Monday, December 11, 2023 12:44 PM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Please the accept petition to extend the QA expiration period to 18 months. External Email Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule.
5	From: Jessica Straight <jkstraight@gmail.com> Sent: Monday, December 11, 2023 11:02 AM To: LCB DL Rules <rules@lcb.wa.gov> Subject: Please the accept petition to extend the QA expiration period to at least 18 months. External Email Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule. For our farm, Eagle Trees, this is a real issue for us, especially for products like RSO, that if kept cold and dark can last longer than 12 months. Also we keep our flower really cold and dark so often times, it isn't necessary to sell it by that 12 month mark. ALSO: the lab fees are already at least double the cost of what they used to be. I think the expiration should actually be 2 years.

	Feel free to reach out to discuss this issue with me. Thanks, Jessica Straight COO/ Owner Eagle Trees
6	**From:** I GROW <igrow412783@outlook.com> **Sent:** Sunday, December 10, 2023 8:45 PM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Expiration date External Email Hello, I am very against incorporating expirations on products unless they are altered products as in edibles or things that have more than just raw cannabis in them. I know for a fact that anything that can pass our testing should be allowed on the regulated market. So, if you have raw flower, it should be allowed on the market even if it's 10 years old, if it's been tested for microbials and passed any of the other tests within the last 12 months it should be allowed to be sold. I had Rosin that tested perfectly for 7 years straight. It was a science experiment for shelf life of product since the research has never been done. We do not have a cannabis commission to do research like that, so as a regulated cannabis grower in the state of Washington, I took it upon myself to track shelf life of products. Respectfully, Jeff Merryman
7	**From:** Pat Waters <patwaters55@gmail.com> **Sent:** Sunday, December 10, 2023 3:41 PM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Please the accept petition to extend the QA expiration period to 18 months. External Email Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule. Sincerely,

	Robert Waters Licensee
8	**From:** Old McDonald's Farm <omfcannabis@gmail.com> **Sent:** Sunday, December 10, 2023 12:24 PM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Please accept the petition to extend the QA expiration period to 18 months. External Email Hello, I write to you today to ask that you accept the recently submitted petition to extend the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last year's testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. Many farmers have already gone bankrupt, please help the remaining farmers. Thanks TJ McDonald 360.241.4303 Old McDonald's Farm License #425099
9	**From:** Floyds Cannabis <fccpullman@gmail.com> **Sent:** Sunday, December 10, 2023 10:25 AM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Please the accept petition to extend the QA expiration period to 18 months. External Email Hello, I write to you today to ask that you accept the recently submitted petition to extend the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last year's testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule. **Annette C. Oddo**

	Store Purchasing Manager Floyd's Cannabis Co. Pullman 509-872-3080 http://floyds-cannabis.com/
10	**From:** ECG 420 <ecgprocessing@gmail.com> **Sent:** Sunday, December 10, 2023 10:17 AM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Please the accept petition to extend the QA expiration period to 18 months. External Email Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 24 months would provide relief to growers without significantly altering the intent of the rule. Sincerely Alban Kaca 206 617 0400
11	**From:** Em Anderson <emily@seattlehashtag.com> **Sent:** Tuesday, December 12, 2023 2:30 PM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Please the accept petition to extend the QA expiration period to 18 months. External Email Hello, I write you today to ask that you accept the recently submitted petition to extend the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last year's testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule.
12	**From:** Jim MacRae <jimmacrae13@gmail.com> **Sent:** Friday, December 15, 2023 5:26 PM **To:** LCB DL Rules <rules@lcb.wa.gov> **Cc:** West, Cassidy (LCB) <cassidy.west@lcb.wa.gov>; Kildahl, Jeff (LCB) <jeff.kildahl@lcb.wa.gov>;

	Jacobs, Daniel (LCB) <daniel.jacobs@lcb.wa.gov>; Laflamme, Denise M (LCB) <denise.laflamme@lcb.wa.gov> **Subject:** Re: Comment on Rule-making Petition for Extension of COA duration from 12 to 18 months External Email To clarify, the first paragraph in my comment to the 18-month COA rule-making petition should have ended with the three words "should be rejected". Here is my comment with the missing text added (and highlighted). Jim MacRae --- Good day. I would like to suggest that the recent petition by Jeremy Moberg, on apparent behalf of the Washington Sun and Craft Growers Association and the Cannabis Alliance to allow test results (and their associated Certificates of Analysis) on unsold cannabis products to lapse after 18 months, instead of the current 12 month period defined in rule **should be rejected.** Product unable to sell in 12 months is, first of all, generally of lower and potentially questionable quality. keeping product in inventory for extended periods of time does not, generally, improve the quality of the product. Keeping in product in inventory for extended periods of time is not, generally, even neutral to the quality of the product. Keeping product in inventory for extended periods of time generally degrades the quality of the product and, at a minimum, would be expected to result in changes in the underlying concentrations and mix of cannabinoids (and, possibly, other meaningful chemical constituents). By way of minimal example, the acid forms of THC naturally decarboxylate over time and various cannabinoids naturally "degrade" into OTHER cannabinoids, given sufficient time. Quality may also degrade, over time, because time gives more time for microorganisms to grow --- some of which are noxious and some of which are defined, in rule, as deleterious to consumer safety and non-allowed in sale-able product. The WSCIA lobbied years ago (successfully --- to the shame of the LCB, IMO) to remove the requirement that harvest date/manufacture date be included on retail packaging. Should you unwisely opt to allow this consumer-unfriendly (and dangerous) change in rule, please include the REQUIREMENT that harvest/manufacture date be included once again on all retail packaging. 18-month old cannabis is not the same as the cannabis that was tested 18 months prior. If it is to be put up for sale after 12 months, it should be re-tested.

	It would be nice, for once, if the agency gave more weight to the 2,000,000 consumers of cannabis in this state than it did to the 150 licensees that routinely spout self-interested noise your way. Remember that the pesticide rule-making of 2022 also cut testing volume in this industry to 1/4 of it's previous level. That was a large financial win for all farmers and many producers. It was a loss for consumers. In that context, the argument presented by the petitioner regarding the cost burden of testing to the farmers unable to sell their product in 12 months is largely vacuous. Please remember that Cannabis is safer than Alcohol and that you have the ability to either reinforce or degrade that truth through the rule-making you do. All the best over the holidays. Jim MacRae jimmacrae13@gmail.com On Fri, Dec 15, 2023 at 4:55 PM Jim MacRae <jimmacrae13@gmail.com> wrote: Good day. I would like to suggest that the recent petition by Jeremy Moberg, on apparent behalf of the Washington Sun and Craft Growers Association and the Cannabis Alliance to allow test results (and their associated Certificates of Analysis) on unsold cannabis products to lapse after 18 months, instead of the current 12 month period defined in rule. Product unable to sell in 12 months is, first of all, generally of lower and potentially questionable quality. keeping product in inventory for extended periods of time does not, generally, improve the quality of the product. Keeping in product in inventory for extended periods of time is not, generally, even neutral to the quality of the product. Keeping product in inventory for extended periods of time generally degrades the quality of the product and, at a minimum, would be expected to result in changes in the underlying concentrations and mix of cannabinoids (and, possibly, other meaningful chemical constituents). By way of minimal example, the acid forms of THC naturally decarboxylate over time and various cannabinoids naturally "degrade" into OTHER cannabinoids, given sufficient time. Quality may also degrade, over time, because time gives more time for microorganisms to grow --- some of which are noxious and some of which are defined, in rule, as deleterious to consumer safety and non-allowed in sale-able product. The WSCIA lobbied years ago (successfully --- to the shame of the LCB, IMO) to remove the requirement that harvest date/manufacture date be included on retail packaging. Should you unwisely opt to allow this consumer-unfriendly (and dangerous) change in rule, please include the REQUIREMENT that harvest/manufacture date be included once again on all retail packaging. 18-month old cannabis is not the same as the cannabis that was tested 18 months prior. If it is to be put up for sale after 12 months, it should be re-tested.

	It would be nice, for once, if the agency gave more weight to the 2,000,000 consumers of cannabis in this state than it did to the 150 licensees that routinely spout self-interested noise your way. Remember that the pesticide rule-making of 2022 also cut testing volume in this industry to 1/4 of it's previous level. That was a large financial win for all farmers and many producers. It was a loss for consumers. In that context, the argument presented by the petitioner regarding the cost burden of testing to the farmers unable to sell their product in 12 months is largely vacuous. Please remember that Cannabis is safer than Alcohol and that you have the ability to either reinforce or degrade that truth through the rule-making you do. All the best over the holidays. Jim MacRae jimmacrae13@gmail.com
13	-----Original Message----- From: Kris Labanauskas <methowgrowers@gmail.com> Sent: Sunday, December 10, 2023 6:01 PM To: LCB DL Rules <rules@lcb.wa.gov> Subject: Please the accept petition to extend the QA expiration period to 18 months. External Email Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule. Sent from my iPhone
14	**From:** Aaron Juhl <funkyfarms1@gmail.com> **Sent:** Sunday, December 10, 2023 6:18 PM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Please the accept petition to extend the QA expiration period to 18 months.

	External Email Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule.
15	-----Original Message----- From: Scott Berka <scott@alohabotanics.com> Sent: Monday, December 11, 2023 9:21 AM To: LCB DL Rules <rules@lcb.wa.gov> Subject: Please the accept petition to extend the QA expiration period to 18 months. External Email Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule. Scott
16	-----Original Message----- From: scott@brocoinvest.com <scott@brocoinvest.com> Sent: Monday, December 11, 2023 9:22 AM To: LCB DL Rules <rules@lcb.wa.gov> Subject: Please the accept petition to extend the QA expiration period to 18 months. External Email

	Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule. Scott
17	**From:** Jake Rosner <aficionadoconsulting@gmail.com> **Sent:** Monday, December 11, 2023 11:11 AM **To:** LCB DL Rules <rules@lcb.wa.gov> **Subject:** Please the accept petition to extend the QA expiration period to 18 months. External Email Hello, I write you today to ask that you accept the recently submitted petition to extent the QA expiration period from 12 months to 18 months. The current period of 12 months creates an unnecessary burden to growers, particularly to outdoor farmers that harvest annually. The 12 month period creates a situation where farmers may not have harvested their next harvest prior to the last years testing having expired. This potentially leaves farmers without product to sell, crippling their businesses. We encourage the LCB to accept this petition and adopt the suggested changes in a timely manner. Extending this expiration period to 18 months would provide relief to growers without significantly altering the intent of the rule.

Compilation and findings from stability and mold studies 12/11/23

Degradation and Stability Studies

1. Kinetics of CBD, D9-THC Degradation and Cannabinol Formation in Cannabis Resin at Various Temperature and pH Conditions (Jaidee et al., 2022)

Evaluated thermal degradation kinetics of dried cannabis resin at different temperatures and pHs. Measured CBD, delta-9 THC and formation of CBN (cannabinol)[CBN has been used as a marker for Cannabis aging see Peschal, 2016]. Conclusion: CBD, D9-THC and CBN reacted more quickly at high temperatures and in acidic solution. Study predicted shelf-life of resin based on a 10% reduction of CBD and D9-THC ($t_{90\%}$) of 3 and 8 days, respectively, in pH 2 solution at 25°C (77°F). **CBN and D9-THC were found to be stable in buffer pH4-12 for at least 25 days at 60°C (140°F). The study does note that pH values lower than 4 are "rarely relevant in food or drugs and their processing."**

2. Metabolic Profiling of Cannabis Secondary Metabolites for Evaluation of Optimal Postharvest Storage Conditions (Milay et al., 2020)

From **Abstract**: Cannabis inflorescences (whole versus ground samples) and Cannabis extracts (dissolved in different solvents) from (-)-19-transtetrahydrocannabinol-or cannabidiol-rich chemovars, were stored in the dark at various temperatures, and their phytocannabinoid and terpenoid profiles were analyzed over the course of 1 year.
Results: "…a storage temperature of 25°C led to the largest changes in the concentrations of the natural phytocannabinoids over time. Olive oil was found to be the best vehicle for preserving the natural phytocannabinoid composition of the extracts. **Overall, our conclusions point that storage of whole inflorescences and extracts dissolved in olive oil, at 4°C, were the optimal postharvest conditions for Cannabis."**

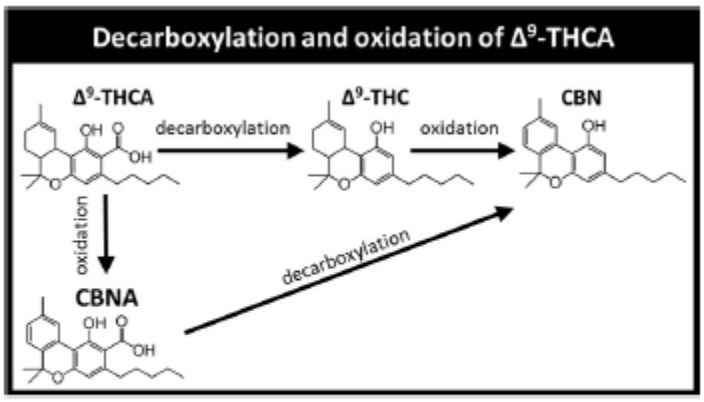

FIGURE 1 | Decarboxylation and oxidation products of Δ^9-THCA. The pathways presented include additional reactions and products not shown for brevity.

3. Stability Study of Cannabidiol in the Form of Solid Powder and Sunflower Oil Solution (Kosovic et al., 2021)
From Abstract: The aim of study was to investigate the chemical stability of cannabidiol (CBD) in the form of a solid powder and dissolved in sunflower oil. **Results: CBD powder was significantly more stable than CBD in oil solution.** Such finding is important because CBD is often administered dissolved in oil matrix in practice due to very good bioavailability.

4. Constituents of Cannabis sativa L. IV: Stability of Cannabinoids in Stored Plant Material (Turner et al., 1973).
Abstract: The (-)-Delta 9 trans-tetrahydrocannabinol content of *Cannabis sativa* L. stored at - 18, 4, and 22 +/- 1 ° decomposed at a rate of 3.83. 5.38, and 6.92%, respectively, per year, whereas the material stored at 37 and *50°* showed considerable decomposition.
C. *mica* L. stored in the absence of direct light at - 18,4, and 22 +/- 1° was more stable than cannabis stored under nitrogen. These data indicate that for normal research use, storage under nitrogen at *0°* is not mandatory. Cannabinol is not the only decomposition product of (-)-Delta 9 trans tetrahydrocannabinol.Tentative evidence supports the possible formation of hexahydrocannabinol as a decomposition product in stored C. *sativa* L.

5. Chitosan-Coated Alginate Microcapsules of a Full-Spectrum Cannabis Extract: Characterization, Long-Term Stability and In Vitro Bioaccessibility (Villate et al., 2023).
From **Abstract**: In this work, the microencapsulation of a full-spectrum extract via vibration microencapsulation nozzle technique using chitosan-coated alginate is proposed to obtain an edible pharmaceutical-grade product. The suitability of microcapsules was assessed by their physicochemical characterization, long-term stability in three different storage conditions and in vitro gastrointestinal release. The stability of cannabinoids in alginate–chitosan microcapsules was evaluated in different temperatures and light storage conditions for 10 months (i.e., 310 days). The studied storage conditions were the following: (i) room temperature (RT) with natural day–night cycle light exposure, (ii) RT without light exposure and (iii) 4 ◦C without light exposure **The stability assays revealed that capsules should be stored only at 4 ◦C in darkness to maintain their cannabinoid profile.**

6. Lindholst, C. Long term stability of cannabis resin and cannabis extracts. Aust. J. Forensic Sci. 2010, 42, 181–190. (article behind pay-wall; https://www.tandfonline.com/doi/abs/10.1080/00450610903258144)
Abstract The aim of the present study was to investigate the stability of cannabinoids in cannabis resin slabs and cannabis extracts upon long-term storage. The levels of tetrahydrocannabinol (THC), cannabinol (CBN), cannabidiol (CBD) and cannabigerol (CBG) on both neutral and acidic form were measured at room temperature, 4°C and −20°C for up to 4 years. Acidic THC degrades exponentially via decarboxylation with concentration halve-lives of approximately 330 and 462 days in daylight and darkness, respectively. The degradation of neutral THC seems to occur somewhat slower. **When cannabinoids were stored in extracted form at room temperature the degradation rate of acidic THC increased significantly relative to resin material with concentration halve-lives of 35 and 91 days in daylight and darkness,**

respectively. Once cannabis material is extracted into organic solvents, care should be taken to avoid the influence of sunlight.

7. Zamengo, L.; Bettin, C.; Badocco, D.; Di Marco, V.; Miolo, G.; Frison, G. The role of time and storage conditions on the composition of hashish and marijuana samples: A four-year study. Forensic Sci. Int. 2019, 298, 131–137.

Abstract

The aim of this study was to investigate the role of time and different real-life storage conditions on the composition of different varieties of cannabis products (hashish and marijuana). Six high-potency cannabis products constituted by herbal and resin materials containing different initial concentrations of delta 9-Tetrahydrocannabinol (THC) were employed for this study. Four representative samples were collected from each study material and were maintained for a prolonged time (four years) under different controlled storage conditions: (A) light (24 h) and room temperature (22 °C); (B) darkness (24 h) and room temperature; (C) darkness and refrigeration (4 °C); (D) darkness and freezing (−20 °C). The concentration of the three main cannabinoids, i.e. THC, Cannabinol (CBN, produced from the degradation of THC), and Cannabidiol (CBD), were measured by GC-FID around every 100 days along the four-year study.

Significant changes in the THC (degradation) and CBN (formation) content were detected under storage conditions A and B, and almost 100% of THC was degraded after four years. A mono-exponential function was able to well fit both THC degradation and CBN formation, suggesting that these processes occur with a first order kinetics. Data treatment indicated that the storage temperature and light exposure had two different effects on the conversion of THC to CBN: temperature changed only the speed, light changed both the speed and the stoichiometry of this conversion.

Models were proposed which allow to predict the storage time, if unknown, and the initial content of THC (i.e. the concentration of THC at the starting storage time), from the measurement of THC and CBN content at any time under storage condition A. Values predicted are more uncertain at larger storage times and have an accuracy of around 5-10%. These models were also tested on data reported in the literature, and can represent a starting point for further improvements. Prediction models may be helpful for forensic purposes, if the initial concentration of THC or the approximate age of a degraded material need to be estimated, or to plan the storage of delicate samples which need to be re-examined over time.

8. Review: Cannabinoids—Characteristics and Potential for Use in Food Production (J. Kanabus et al., 2021). Scientific demonstrations of the beneficial effects of non-psychoactive cannabinoids on the human body have increased the interest in foods containing hemp components.

Sections summarizing stability studies:

6. Cannabinoid Stability
6.1. Cannabinoid Stability with Respect to Temperature, Time, and Light

Based on the above results, it can be concluded that the longest stability of cannabinoids, both neutral and acidic, requires them to be stored in the dark. The use of refrigerated temperatures reduces the loss of cannabinoids during storage caused by decarboxylation.

6.2. Cannabinoid Stability with Heating
Recent reports on the stability of cannabinoids in food matrices show that the environment in which we store products containing cannabinoids, the heating temperature, and matrix affect the stability of cannabinoids in the finished product.

9. Determination of the relative percentage distribution of THCA and Δ^9-THC in herbal cannabis seized in Austria – Impact of different storage temperatures on stability. Taschwer et al., 2015. (Article behind paywall; https://www.sciencedirect.com/science/article/abs/pii/S0379073815002972?via%3Dihub)

Abstract: Cannabis is globally by far the most widespread illicit drug of abuse. Especially since its legalization in some of the US, controversies about the legal status of cannabis for recreational and medical use have come up.

Δ^9-Tetrahydrocannabinol (Δ^9-THC), which is the major active ingredient in cannabis products, is mainly responsible for the psychoactive effects. Its inactive biosynthetic precursor tetrahydrocannabinolic acid (THCA) is present in different quantities in fresh and undried cannabis plants. **Under influence of drying, temperature and UV exposure it decomposes to Δ^9-THC.**
In this study, a quantification of Δ^9-THC and THCA was carried out to check the stability of cannabis samples. The determination of the degradation of THCA to Δ^9-THC in 29 cannabis products seized in Austria was monitored by HPLC-UV. Mobile phase consisted of a 25 mM triethylammoniumphosphate buffer (pH 3.0) and acetonitrile (36:64). A common LiChrospher® 100 RP-18 column was utilized as stationary phase. To check the influence of low as well as high temperature on the degradation process of the cannabinoid THCA to Δ^9-THC, samples were stored in a freezer or in a drying cabinet for a specified time period. **It was shown successfully that high storage temperatures led to a more rapid and complete decomposition of THCA to Δ^9-THC while at low temperatures only slight or no changes of the percentage distribution were determined.**

10. Research Article Drying of cannabis—state of the practices and future needs. Reddy Challa et al., 2020.(behind paywall; https://www.tandfonline.com/doi/full/10.1080/07373937.2020.1752230)

Abstract: Cannabis is an important source of several bio molecules that possess medical applications. With the growing interest in cannabis processing in Canada, there is a need for innovation in this sector. At present, the cannabis industry relies on slow and inefficient drying practices that result in poor quality product. This review examines the state of the practices and challenges in cannabis drying, and the recent developments. Additionally, some prospective low temperature drying technologies of significance to cannabis industry are discussed. Non-

isothermal, microwave-vacuum, electrohydrodynamic, radio-frequency, and freeze drying have been identified as potential candidates for industrial drying of cannabis.

Abstract: This study was undertaken to quantitatively explore the effect of temperature on the degradation of cannabinoids in dried cannabis flower. A total of 14 cannabinoids were monitored using liquid chromatography and tandem mass spectrometry in temperature environments from − 20 to + 40 °C lasting up to 1 year. We find that a network of first-order degradation reactions is well-suited to model the observed changes for all cannabinoids. While most studies focus on high-temperature effects on the cannabinoids, this study provides high-precision quantitative assessment of room temperature kinetics with applications to shelf-life predictions and age estimates of cannabis products.

11. Thermal stability of cannabinoids in dried cannabis: a kinetic study, Meija et al., 2022. Analytical and Bioanalytical Chemistry 414, 377-384. This article is behind paywall: https://link.springer.com/article/10.1007/s00216-020-03098-2

Findings from the study are summarized here in an Analytical Cannabis news article:

Early cannabis stability studies estimated that the THC content in cannabis would decrease at a rate of 3-5 percent per month when kept at room temperature. More recently, estimates have confirmed a 12 percent degradation in THC over the first 100 days of storage, equivalent to a rate of 3-4 percent each month. The NRCC researchers found the average monthly THCA+THC degradation rate to be 2 percent at 20°C and have also created an interactive cannabis stability calculator to better illustrate these findings for each cannabinoid across the full experimental temperature spectrum.

Findings: The researchers first created a homogenous blend of two different cannabis strains, chosen to achieve a good spread of common cannabinoids present in easily detectable levels. The material was then placed in one of six different simulated storage conditions ranging from temperatures of -20°C to +40°C (including one held at room temperature) for up to one year. Samples were taken from these feedstocks regularly to assess the extent of degradation in seven different cannabinoids over time, with two additional samples stored at -80°C acting as a control.

On analyzing the data, the scientists determined that a network of first-order kinetic models provided a good fit to model all the observed changes across the seven cannabinoids of interest.

Fungal and mycotoxin growth

1. Fungal and mycotoxin contaminants in cannabis and hemp flowers: implications for consumer health and directions for further research. (Gwinn et al., 2023)

Reviews approaches to reduce fungi and mycotoxins on cannabis and hemp that include pre-harvest management, post-harvest management, and reducing mycotoxins in cannabis tissues specifically around by decontamination methods.

2. Total yeast and mold levels in high THC-containing cannabis inflorescence are influenced by genotype, environment, and pre- and post-harvest handling practices (Punja et al., 2023)

Total yeast and mold levels were related to species genotype, growing conditions, and harvest and drying methods specifically for greenhouse grown Cannabis sativa. Found that hang-dry method reduced total yeast and mold compared to wet-trim method for harvesting.
From Abstract: The variables that significantly ($p < 0.05$) increased these TYM levels in inflorescences were: the genotype (strain) grown, presence of leaf litter in the greenhouse, harvesting activity by workers, genotypes with a higher abundance of stigmatic tissues and inflorescence leaves, higher temperature and relative humidity within the inflorescence microclimate, time of year (May–October), method of drying buds after harvest, and inadequate drying of buds. The variables which significantly ($p < 0.05$) decreased TYM in samples were: genotypes with lower numbers of inflorescence leaves, air circulation achieved by fans during inflorescence maturation, harvesting during November–April, hang-drying of entire inflorescence stems, and drying to a moisture content of 12–14% (water activity of 0.65–0.7) or lower which was inversely correlated with cfu levels.

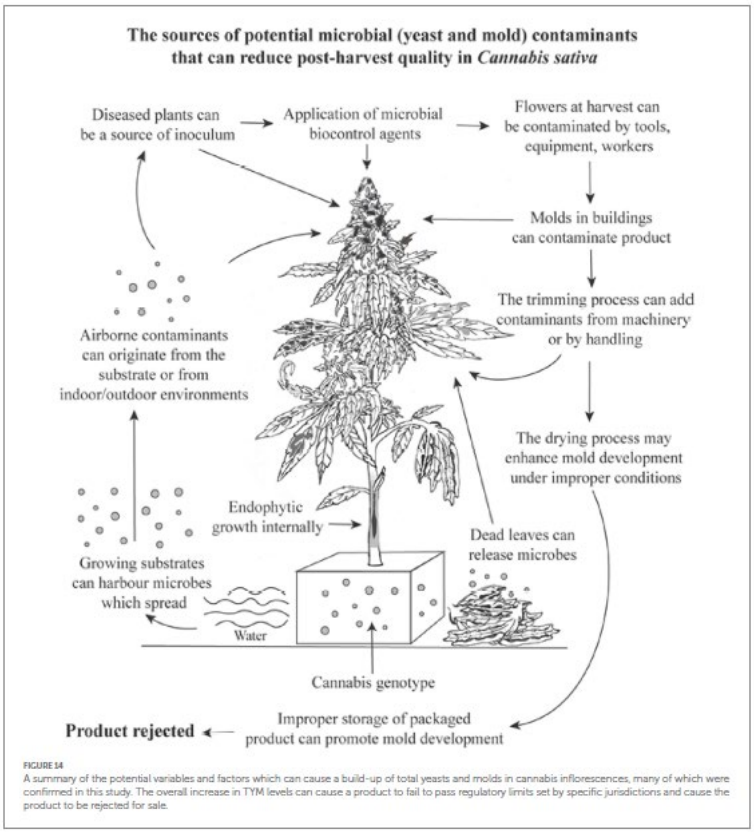

FIGURE 14
A summary of the potential variables and factors which can cause a build-up of total yeasts and molds in cannabis inflorescences, many of which were confirmed in this study. The overall increase in TYM levels can cause a product to fail to pass regulatory limits set by specific jurisdictions and cause the product to be rejected for sale.

Quality Assurance and Quality Control Language Change in Rule

Laboratories are required to submit test results to the CCRS system.

Every week the chemists compile, analyze, and categorize all data submitted to the State's traceability system by the laboratories. Chemists then provide Enforcement and Education with actionable results and guidance based on agency policy and procedures.

Analysis of cannabis product testing results is a vital aspect of ensuring public health and safety. The LCB can identify and intercept products that fail required testing before they reach the consumer.

Ensuring that all cannabis products are tested within compliance of WAC 314-55 is essential to this process.

Current language in the WAC contains two legacy terms for testing that are remnants of a previous traceability system. The terms 'quality assurance testing' and 'quality control testing' are not defined, consistent, or relevant to the current traceability system. Licensees are interpreting and leveraging the definition of these two terms to justify not submitting all test results to the State's traceability system. Therefore, a large percentage of the testing being conducted by the laboratories on cannabis products is not submitted to the State's traceability system. Self-reported testing type breakdowns received by the LCB from laboratory audits demonstrates that up to 50% of testing conducted on cannabis is not submitted to the traceability system.

The existing rule does not clearly define that 'all' cannabis compliance testing should be submitted to the traceability system. Furthermore, the inconsistent use of two different 'types' of testing creates confusion and unclear definitions of testing expectations and requirements.