TO: Economic Affairs Interim Committee (EAIC)
FROM: Cannabis Control Division
DATE: November 7, 2023
SUBJECT: Revenue and Sample Test Count Data Examination

INTRODUCTION

This memo is in response to Mr. Kosted's public testimony provided during the September 26, 2023, EAIC meeting regarding the revenue generated from the sale of marijuana and marijuana products in relation to the reduced number of samples received at former testing facility, Stillwater Laboratories Inc. This relationship between revenue and statewide sample test count is complex and multifaceted and should not be assessed solely on the sample test counts from a single licensee. Nor should a laboratory's reduced sample workload be attributed wholly to a single limited issue. The Department has extensively examined laboratory testing and sales data from the seed-to-sale tracking system and has provided an in-depth and comprehensive assessment and conclusion.

The Cannabis Control Division's (CCD) Analytics Unit investigated the following contributing factors regarding the relationship between revenue generated and the volume of product tested within the state program:

1. The number of samples tested from 2019 to 2022.
2. The source package quantity tested by product category from 2021 to 2022.
3. The average retail price by product category from 2021 to 2022.

1. SAMPLE TEST COUNT

Examining the number of samples tested by each licensed laboratory from 2019 to 2022 provides a high-level understanding of each laboratory's sample workload before, during, and after adult-use implementation. The data in Table 1 indicates that the total number of samples tested has increased steadily from 2019 to 2022. The largest jump in samples tested occurred from 2021 with 43,903 samples tested to 2022 with 56,422 samples tested. An increase of 12,519 samples coinciding with the implementation of the adult-use market. Table 1 also shows sample workload trends by laboratory before, during, and after adult-use implementation.

Number of Samples Tested by Year and Laboratory: 2019-2022				
Laboratory	**2019**	**2020**	**2021**	**2022**
Laboratory A	12,391	13,404	14,165	15,402
Laboratory B	17,738	22,302	26,508	35,746
Laboratory C	2,650	2,142	2,280	2,165
Laboratory D	--	--	950	1,254
Laboratory E	--	--	--	1,855
State TOTAL	**32,779**	**37,848**	**43,903**	**56,422**
State Year to Year % Increase	--	**15%**	**16%**	**29%**

Table 1

Furthermore, the data in Table 2 shows each licensed laboratory's share of the market determined by the number of samples tested by year. It is important to note that not all licensed laboratories have experienced similar increases in sample workload over the time period provided. It is also important to note that there was a 29% increase in the number of samples tested across the entire state from 2021 to 2022. The same time frame over which adult-use was implemented.

Market Share by Laboratory: 2019-2022				
Laboratory	**2019**	**2020**	**2021**	**2022**
Laboratory A	37.8%	35.4%	32.3%	27.3%
Laboratory B	54.1%	58.9%	60.4%	63.4%
Laboratory C	8.1%	5.7%	5.2%	3.8%
Laboratory D	--	--	2.2%	3.3%
Laboratory E	--	--	--	2.2%

Table 2

2. SOURCE PACKAGE QUANTITY TESTED by PRODUCT CATEGORY

Determining the average amount of product per source package in 2021 and 2022 allows the Department to evaluate if licensees were growing or manufacturing below, at, or above the minimum thresholds for testing before and after adult-use implementation. The data gathered was separated into the following defined product categories: flower, concentrates/extracts, and infused products. This data was then compared by year to determine if the implementation of adult-use marijuana spurred the industry to scale up production. This analysis indicates the industry greatly benefited from economies of scale simply because growers and manufacturers were on average producing under the minimum thresholds for testing prior to adult-use implementation. After adult-use implementation the majority of licensees were still harvesting and producing source product amounts under the minimum testing thresholds required per test batch.

Table 3 shows that the amount of flower tested increased by 32,499 pounds with a corresponding increase of 3,471 sample tests between 2021 and 2022. This represents a 65.2% increase in the amount of source flower tested from 2021 to 2022. Flower is required to be tested once for every 5-pounds produced. It is important to note that prior to and after adult-use implementation, the majority of cultivators were still growing under 5-pounds of cannabis per test batch. This trend is evident when considering the average quantity of source flower tested per test sample in 2021 was 1.75 pounds, and then increased to an average of 2.58 pounds per test sample in 2022. Both figures are well under the 5-pound threshold required for additional flower testing.

Flower Source Quantity Test Counts: 2021 - 2022		
Year	Total Source Package Quantity Tested in lbs	# of Samples Tested
2022	82,317	31,930
2021	49,818	28,459
Difference	32,499	3,471
% Increase in Source Flower Tested from '21 to '22		65.2%

Table 3

Table 4 shows that the amount of concentrate/extract produced increased by 4,532 pounds with a corresponding increase of 4,809 test samples between 2021 and 2022. This represents a 23.6% increase in the amount of source concentrate/extract tested from 2021 to 2022. In the majority of scenarios, concentrate/extract is tested once per 48-hour process lot window. A process lot is defined as the amount of concentrate/extract a license can produce in a 48-hour period. It is also important to note that manufacturers were producing more product within that same 48-hour timeframe after adult-use implementation.

Conc./Extract Source Quantity Counts: 2021 - 2022		
Year	Total Source Package Quantity Tested in lbs	# of Samples Tested
2022	23,711	13,607
2021	19,179	8,798
Difference	4,532	4,809
% Increase in Source Concentrate Tested from '21 to '22		23.6%

Table 4

Table 5 shows that the amount of infused product tested increased by 6,121,685 units-of-sale with a corresponding increase of 4,239 tests between 2021 and 2022. This represents a 192% increase in the amount of source infused product tested from 2021 to 2022. Infused product is required to be tested once every 5,000 units-of-sale produced. It is important to note that the average licensee in 2021 made

480 units-of-sale per test and in 2022, that average increased to 855 units-of-sale. Both are well under the 5,000 unit-of-sale threshold required for additional testing.

Infused Products Source Quantity Counts: 2021 - 2022		
Year	Total Source Package Quantity Tested in Units-of-Sale	# of Samples Tested
2022	9,310,962	10,885
2021	3,189,277	6,646
Difference	6,121,685	4,239
% Increase in Source Infused Product Tested from '21 to '22		**192%**

Table 5

3. MARKET SHARE & AVERAGE RETAIL PRICE from 2021-2022 by PRODUCT CATEGORY

In determining if test sample numbers correlate with revenue generated, it is important to assess retail prices by product category and market share by product category over time as these parameters are not static. The Department examined the retail value and market share of each product category from 2021 and 2022 to determine if the retail value of all the product categories has decreased, remained the same, or increased with implementation of the adult-use market. Table 6 indicates that from 2021 to 2022, flower retail prices per gram increased 9.2%, concentrate/extract retail prices per gram increased 23.2%, and infused product retail prices per unit-of-sale increased 13.6%. Table 6 also indicates that in 2022, flower held 61.6% of the share followed by concentrates/extracts at 27.0%, and infused products at 11.4%.

Revenue, Market Share, & Average Retail Cost Per Unit by Product Category			
	Flower (grams)	**Concentrate** (grams)	**Infused Products** (units-of-sale)
2022 Total Revenue	$187,097,805	$82,150,109	$34,678,411
2022 Market Share (as % of Total Revenue)	61.6%	27.0%	11.4%
2022 Average Retail Cost Per Unit % Increase from 2021	9.2%	23.2%	13.6%

Table 6

CONCLUSION

In this memo the Department examined the main contributing factors used to determine whether the number of samples tested has increased commensurate to that of the revenue generated. This memo provides a comprehensive assessment of Montana's seed-to-sale system laboratory testing and sales data. Included were the number of samples tested by laboratory and as an aggregate over time, the source package amount covered by these test counts before and after adult-use implementation, and the average retail price increase by product category after the transition into the adult-use market.

With adult-use sales implemented on January 1, 2022, Montana experienced an increase in revenue, a corresponding increase in the number of samples tested, an increase in the source product amount tested across this increased number of test samples, and an increase in retail pricing over all product categories. Not every licensed laboratory experienced similar increases in the number of samples tested in the adult-use market. However, the statewide increase was significant.

Licensed cultivators and manufacturers were also able to experience economies of scale within the adult-use market in terms of the number of required laboratory test samples. Licensees were able to experience cost advantages as production increased to accommodate the adult-use market. Laboratory testing costs were spread over a larger amount of product volume while still abiding by the minimum testing thresholds set in rule. This trend is clear when considering the source product tested by product category from 2021 to 2022 increased by 65% for flower, 24% for concentrate/extracts, and 192% for infused product.

The relationship between the revenue generated, sample test count, and revenue generated by any one laboratory within the industry, does not follow a simple correlation or 1:1 ratio. It is incorrect to simply assume that the percent increase in revenue generated by an entire state industry should be equal to, closely proportionate to, or even similarly experienced by any one licensed laboratory within the industry. Additionally, to simply assume a reduced sample workload is due solely to an exaggerated seed-to-sale tracking concern suggests a narrow understanding of the trends in the industry at large. The Department has determined the seed-to-sale concern purported to be the main contributing factor to said laboratory's failing to be inconsequential and managed sufficiently through pre-inspection data queries of licensees. The success or failure of any business can be attributed to any number of factors outside of what was discussed in this memo or brought to the podium. Additionally, the Department would like to take this opportunity to address Mr. Kosted's public statement on the record concerning the number of laboratories in the state. Mr. Kosted incorrectly stated there is one testing laboratory remaining in the state. At the time of his testimony there were, in fact, 4 licensed laboratories. Upon submission of this memo, there are 3 remaining laboratories.

In conclusion, after a thorough examination of data gathered from the seed-to-sale tracking system and considering all contributing testing and sales factors discussed in this memo; the Department has determined the increase in revenue generated is commensurate to the number of samples tested of marijuana and marijuana product before and after Montana's creation of the adult-use market.