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Director

Idaho State Police

Service since 1939

C.L. "Butch" Otter
Governor

March 13, 2015

Senate State Affairs Committee:

Idaho State Police (ISP) Forensic Services opposes the current version of Senate Bill 1146 due to a number of factors listed below, but primarily because of the fiscal impact on the ISPFS laboratory system. ISPFS representatives have been present at each hearing for SB 1106 and SB 1146, and have not been allowed to testify to our concerns about these bills. ISPFS has visited with members of the Senate State Affairs Committee and circulated emails to the Committee regarding our concerns, but no changes have been made to mitigate our concerns about the bill language. Due to the agenda for the hearing on 3/13/2015 stating that "no additional testimony" will be taken, we felt it important to circulate our comments/concerns to the Committee in written form.

- 37-2701 (1) (t) (1) (i) Perhaps the biggest problem in the proposed legislation is still the definition of THC (and CBD). The cannabis plant produces, among other things, tetrahydrocannabinolic acid and cannabidiolic acid. These compounds break down with time, light and heat to THC and CBD. The proposed legislation needs to reflect that the percentages that are listed are total THC (the sum of tetrahydrocannabinol and tetrahydrocannabinolic acid) and similarly, total CBD. THCA and CBDA in marijuana and concentrates get converted in the injection port of certain instruments. There are samples of marijuana and concentrates which contain less than 0.3% THC, but a lot of THCA. For a sample to be determined to have 15 times more CBD than THC, it's going to have to be total CBD and account for both CBD and CBDA. Due to the conversion of the acids in the injection port of certain instruments, you really cannot determine how much of the acid form exists in the sample. Conversion in the injection port is not complete, and any method of pre-decarboxylation creates health and safety concerns for the analysts. This THCA/THC and CBDA/CBD issue becomes very problematic when you have legal % thresholds.

- 37-2701 (1) (t) (1) (iii) still references "no other psychoactive substances." ISPFS Chemists are not trained to talk about the psycoactivity of any substance. This would require additional training or the courts to bring in additional pharmacologists or experts to testify to the effect of the quantitation amount we provide. Either training or outside experts are not factored into our fiscal estimate.

- 37-2701 (1) (t) (2) (iv) requiring that an independent laboratory has verified the "tetrahydrocannabidiol (*sic*) and cannabidiol percentages" is problematic because there is no provision to ensure that it is a reputable or accredited laboratory. The only way to ensure the quality of the testing is by requiring the lab to be internationally accredited by an ILAC recognized accrediting body. Even if this were written in the legislation, we are unaware of any accredited lab performing this testing. Further, the wording lists the chemical tetrahydrocannabidiol in five different locations. We presume this should be tetrahydrocannabinol, since the former does not exist.

- The total THC and total CBD would not only need to be verified prior to sale, but also the contents of the bottle need to be verified prior to the affirmative defense used in legal proceedings. Currently ISP

Forensic Services does not perform quantitative testing of THC or CBD (or THC versus CBD). This would require an estimated six additional FTE's, as well as additional instruments. Quantitative chemistry is much more difficult and time intensive than qualitative work. If the affirmative defense requires that the defendant have testing performed by an independent forensic lab other than ISPFS to prove that it complies with the "cannabidiol oil" definition, then there may be little impact to the lab. We do not believe that will be the case, and that the ISPFS lab will have to test these items. Our laboratory also provides analysis for the public defender's office, so we may still have to provide testing even if it is required to be provided by the defendant. If the state is required to prove the total THC/CBD concentrations for trial, we would still have to develop new methods, purchase new instruments and hire more staff. Doing this type of testing on a private basis is not feasible. We are not aware of any accredited forensic labs currently providing this service. A forensic lab would have to be used in order to maintain the chain of custody and other evidentiary provisions needed to ensure the integrity of the testing for court purposes. One private forensic laboratory estimated that one sample would cost about $1,500.00 for quantitative analysis if they were to develop a method.

- The container must have a capacity of "32 ounces or less." This most likely should be "fluid ounces". Liquids are most commonly measured in volume not weight. The fluid ounce is a measure of volume.

- Fiscal Impact (provided previously to the Committee). In discussion with some of our stakeholders (attorneys, law enforcement, etc.) we believe that the "affirmative defense" provision in this bill will still require the ISPFS lab to quantitate a large number of samples. While it is extremely difficult to predict what law enforcement and the officers of the courts would expect from the lab if this legislation were to pass, we still estimate the fiscal impact on ISPFS to be anywhere between 1.2 million and 2.6 million to the ISPFS laboratory alone to implement the legislation as currently written. These estimates are based on very quick research on this topic using data from other states that have implemented similar laws. It is admittedly a rough estimate. This fiscal impact is due to the following factors:
  - Increased time for quantitative analysis
  - Development of a new method that is not being used in the lab currently
  - Need for new analysts, instrumentation, equipment and supplies
  - Difficulty in working with these type samples
  - Increased sample numbers

- Currently the lab just confirms that there is THC in a sample and reports that marijuana is present. The legislation has a proposed threshold for the THC level (less than 0.3% THC by weight). Therefore, worst case scenario (and most likely scenario with the legislation as currently written) would be the requirement to quantitate THC in every suspected MJ case. ISP chemists have extensively researched the legislation and believe this legislation requires testing to show all samples suspected of containing THC would have to be quantitated. We believe as currently written that plant material is included in this analysis because of the way the definition is written. By the definition of "cannabidiol oil", the "oil" would not be limited to liquid or oil samples. The definition includes "or a mixture of preparation containing cannabis plant material". This expands the use and testing to any plant material that the defendant claims fits into the limits of CBC oil. If the "cannabidiol oil" definition were limited to mean an extract from a cannabis plant in an oral suspension or oil, we could eliminate testing plant samples. ISPFS does not currently provide quantitative THC testing. If this law were enacted as currently written, a

quantitative method would need to be developed and validated. While this approach might be possible for most substances, it might be virtually impossible for us to quantitate THC from all pipe or residue cases since we do not have a weight to calculate the concentration from.

- Last year the ISP forensic lab confirmed marijuana in well over 4000 samples. There were other suspected marijuana cases that tested negative, but we do not have statistics on the number of negative cases that were tested for marijuana. With this new legislation, the samples will increase because there are no quantitative screening methods that can be used in the field. The lab currently uses a qualitative method (a combination of wet chemistry techniques) to identify THC in a sample. These tests include observing the sample with a stereomicroscope, a thin layer chromatography (TLC) test, and a chemical color test. An analyst can sample, process, and run 20 of these samples in about 3 hours.

- With a quantitative method, each sample would need to be homogenized (mixed thoroughly), and this would present a challenge. Many exhibits are quite large and come in various forms, such as plant material, whole plants, food products, pipes, oils and resins which are quite viscous like honey. In fact one product we are seeing a significant rise in is called butane honey oil. The concentrated oils of THC are very thick and sticky. Removing some items from packaging and homogenizing them is very difficult. These are "dirty" sample types, especially the edibles, so they need to be run on a dedicated instrument—especially since there will be so many samples. In addition, due to some technical issues with THC, specific instrumentation is required. The lab would need new instrumentation to run these samples. Each instrument has a fairly significant cost, but the cost that is often over looked is the cost to maintain and run them.

- Further, there will be samples run on the instrument that have very high THC concentrations. We would need to have a way to make sure the THC from a high sample did not contaminate the potential low level sample run next on the instrument. In order to analyze the samples they would need to be run in duplicate on an instrument. Only one sample at a time can be run on the instrumentation. The instrument would take about 10 minutes per run. Each sample must have a blank run in front of it. To analyze one sample, we would need to do 4 runs on the instrument (2 blanks and 2 of the sample). Quantitative testing requires more controls and calibrators to be run. The time to do instrumental based quantitation of 20 samples would be about 850 minutes (14 hours). Processing the data and calculating the levels would also add time to the analysis. We estimate that it would take 50 times longer to quantitate each lab sample as compared to the current analytical methods.

- The number of marijuana samples submitted to the ISP forensic lab will undoubtedly increase due to this legislation because the burden will be on law enforcement to prove the amount of THC in the sample. There are local labs (Ada County) that currently perform marijuana analysis. These labs would either have to obtain the instrumentation and training and absorb the cost, or the state lab would have to assimilate all their testing. Local labs will not be able to test without significant instrumentation changes, validation, and training. If local labs just start sending all their work to the state lab, we would have a dramatic caseload increase.

- Currently the lab turnaround time for a lab test is approximately three to four weeks. Given the likelihood of a substantial increase in substances being sent to the lab for testing, turnaround time will increase significantly. The 50 times increase in analysis time could lead to issues ensuring a speedy trial.

- Edibles, vaping liquid, injectibles, and oils are all extremely difficult samples to work with on the scientific instrumentation and with scientific methods. The lab needs new equipment, methods, validation, and training to quantitate them.

- The edibles issue might be the most troublesome. Vaping, oils, edibles, and other THC products will continue to become more prominent (this is the wave we are seeing now) because those looking to take advantage of this proposed law will know the loopholes and the number of cases submitted will increase. There is no way to estimate how many more, but we suspect something similar to the proliferation of "spice" samples when those were thought to be legal in Idaho. Vendors and consumers will say that products are legal and force law enforcement to test the product to show that it is not legal in Idaho. Vendors will bring in certificates of compliance with claims that ISPFS will have to validate. We estimate an increase of at least double the number of cases we are seeing right now.

- Validation 8-12 months of dedicated work. In addition, we will have to determine and report the uncertainty of measurement. Determination of Measurement Uncertainty for purity testing is required for accreditation. It's so much more involved than the simple MU for weighing evidence samples.

- Some health and safety considerations are that acetonitrile and other chemicals are brutally expensive, plus and there are waste disposal costs at the back end of analysis.

- We need appropriate pipettes to do the quant and that set up will cost just under $3000 with ongoing calibration, tips, monitoring, etc. We need analytical balances that read to five decimal places. Mettler balances of this caliber will be $5000 each. Standards needed for quality control cost $200.00 each, and they are needed often because they break down quickly.

In short, the legislation as it is currently written is unachievable, unsustainable, and most importantly for ISPFS, it is unfunded in the fiscal impact statement.

Sincerely,

Matthew Gamette,
Laboratory System Director
Idaho State Police Forensic Services