



**Attention:** California State Water Resources Control Board **9/30/2016**

**C.c.:** Senator Mike McGuire, Senator Rob Bonta, Assemblyman Jim Wood,  
Amber Morris (C.D.F.A.), Patrick Foy (C.D.F.W.), Jeffrey Parks (S.W.R.C.B.)

**Regarding:** Proposed Regulations for Cannabis Cultivation & Water Rights in 2018

**From:** Jason Browne (Expert Witness / Cannabis Industry Consultant)

Greetings,

After having reviewed the S.W.R.C.B. website and workshop survey, my partner and I were pleased to attend two of your recent public workshops. We've prepared an analysis of the questions and issues that you've raised so far regarding development of the Medical Cannabis Cultivation Program, for your consideration. Please include this document within your ongoing discussions regarding the development of The Program, as part of the public record:

**1) Leading with a False Narrative.** It's important to point out at the onset, that the materials and statements made available to the public on the S.W.R.C.B. website in regards to medical cannabis cultivation are completely inaccurate, and should be changed if this agency desires applicants to take your role in cannabis regulation seriously. The photographs of marijuana plantations, and the horrible instances of water contamination, illegal dumping, booby traps and other nefarious activities associated with marijuana cultivation, all stem from illegal cartel grows and other criminal enterprises. Such operations have nothing whatsoever to do with the cultivation of medical cannabis by qualified patients, or with the licensed cultivation policies being discussed here today. None of those operations enjoy any legal protections under the C.U.A. and M.M.P.A. now, nor will they enjoy the additional protections offered under M.C.R.S.A.

In fact, such illegal operations have dramatically increased in every jurisdiction that has effected a local "ban" on medical cannabis cultivation. This is no coincidence. Local city and county bans have directly caused an increase in those illegal grow operations, throughout the State. I suspect this is actually the underlying purpose of local bans, as it affords continued financial opportunities for those who profit from cannabis prohibition, at the expense of patients' health and the safety of our communities. This dichotomy between Licensed and Banned jurisdictions, and the legal patchwork this creates in the State Marketplace, is entirely the responsibility of paid political lobbyists working on behalf of anti-cannabis groups like the League of California Cities and various Law Enforcement Associations.



**2) The False Premise of “Harm to Watersheds”.** There is no factual basis for S.W.R.C.B. to categorize upcoming water uses and discharges related to the commercial cultivation of cannabis by State-Licensed operators as being “wasteful” or “harmful”. I asked three very poignant questions at one of your public meetings, and the answers I received confirmed my suspicions that these rules have nothing to do with promoting sustainable water usage:

**A)** I asked whether or not S.W.R.C.B. had conducted any research yet, comparing the amounts of water needed to produce a pound of cannabis, with the amounts of water needed to produce a pound of various other commercial crops grown in California (including Rice, Alfalfa, Grapes and Almonds). I also asked if S.W.R.C.B. had researched the crop values for cannabis, compared to the crop values of these other crops. The answer I received for both questions was “not yet”.

**B)** I asked whether or not S.W.R.C.B. holds any other commercial growers in California to similar water use standards as those defined under SB 837 for cannabis farmers. The answer I received was “no”.

**C)** And I asked if these rules really had anything to do with water use, or if they really were just about “cannabis”. The answer I received was “it’s really just about cannabis”.

**3) Wrong-Headed Approach.** It is an easily researched fact that cannabis is one of the most water efficient crops grown in California, and that it is also the most valuable commercial crop, pound for pound, being cultivated in the golden state today. We are providing you with more information on this subject, herein. It is my hope that your agency will take a lead scientific role in the evaluation of water consumption and discharges, as they relate to all commercial crops grown in California, including but not limited to commercially grown cannabis. I am also including this information to our State Legislature, in order to assist them with completing any “clean up” language that is required in order to facilitate the new rules being proposed by all M.C.R.S.A. Licensing Agencies next year. I understand that this “anti-cannabis” water-use language was probably lobbied into S.W.R.C.B. at the bequest of special interests with financial ties to cannabis prohibition, and I intent to help rectify this dilemma by calling attention to some of the actual costs and benefits of agricultural water consumption in California.

At this time, no other crops in California are subjected to such extreme water use standards. Under our current water use regulations, any Licensee under M.C.R.S.A. may divert water directly from a stream, to water other crops, or for any other personal or business purposes, and such diversions are completely legal, so long as the water never comes into contact with cannabis roots. While it’s true that any “significant” streambed alterations or diversions of water fall under the jurisdiction of C.D.F.W., even these rules are not being evenly applied in



regards to cannabis cultivation. Rather, all alterations or diversions of water by cannabis farmers are considered to be violations, regardless of their significance. There is no scientific basis for these extreme water conservation rules only applying to one crop in the entire State of California, and not to any others. The obvious reason for this discrimination against cannabis farmers is that the language was added at the behest of the cannabis prohibition industries. It has no place in any reasonable farming regulations, and the language of SB 837 should be amended, accordingly.

Likewise with the rules governing water discharges. The varieties of fertilizers used for both commercial and organic crop production in California have already been evaluated by State and Federal agencies, and their respective discharge prevention rules are already established. The impacts of such discharges on any watershed do not change based on the nature of the crops being fertilized. The rules governing discharges into watersheds should logically be the same for any crops, and cannabis is no exception.

**3) The Future of Farming in California.** With all of that being said, it is important to note that cannabis farmers are actually some of the most environmentally conscious farmers in California. So long as the rules governing water diversions and waste discharges do not become prohibitively expensive (undermining the stated purposes of regulated cannabis cultivation), your agency will discover that cannabis farmers are eager and willing to be on the forefront of watershed stewardship practices in commercial agriculture. In fact, I anticipate that licensed cannabis farmers will prove valuable in assisting your agencies with identifying unlawful water diversions and waste discharges from unlicensed farmers, and from other agricultural, commercial or industrial operations throughout the State. And this will help S.W.R.C.B. to focus its attention on the actual health of our watersheds, instead of the politics of marijuana.

**4) Misappropriation of Funds.** In the past two years, I have observed that the presence of law enforcement personnel has increased dramatically in both S.W.R.C.B. and C.D.F.W. This coincided with the de-funding of C.A.M.P., and their subsequent re-branding as C.E.R.T. This appears to be an expansion of regional “drug taskforces”, a literal jobs program for the prohibition industry, and it’s important to understand the financial implications of this expansion, as it relates to the new M.C.R.S.A. enforcement funds available to S.W.R.C.B. and C.D.F.W.

During the public meeting, a small presentation was given by the Water Enforcement Team (“W.E.T. Agents”) and C.D.F.W. Agents. Because this particular meeting took place in a “banned county”, where no M.C.R.S.A. License Applications are even being considered, the primary focus of the County representatives present was on how S.W.R.C.B. and C.D.F.W. resources could be used to ostensibly target any remaining medical cannabis farms in the area with water



use violations, prior to 2018. The County also expressed an intention to ban patients from even using ground water (from their own wells) to water their cannabis plants. This discussion was a stark reminder of how public resources are routinely being squandered under the guise of cannabis prohibition, with no regard for the public interest or the rights of landowners and patients.

It seems clear that the prohibition industry desires to misappropriate public funds and misapply the law, in order to “enforce” provisions of M.C.R.S.A. that do not exist. If local cities or counties opt to pursue nuisance abatement actions against local patients and farmers, they have their own code enforcement budgets to pay for it, and should not be allowed to appropriate state agents and funding to do so. In the interests of preventing this waste of public resources, and in preventing enforcement actions that run counter to what M.C.R.S.A. actually states, I suggest that S.W.R.C.B. and C.D.F.W. both consider the following:

- Instruct all of your agents (including the “W.E.T. Agents”) that under C.H.S.C. Section 11362.775(b), the rules governing patient Collectives and Cooperatives under are still in effect, until one year after the B.M.C.R. posts a notice on its Internet Website that the licensing authorities have commenced issuing licenses pursuant to the M.C.R.S.A., and that those protections are not legally repealed until then.
- Instruct all of your agents that your mission and funding does not include assisting in the enforcement of local ordinances, and withhold all M.C.R.S.A. funding that your agencies receive from being applied in any jurisdictions having effective or de-facto cultivation bans on the books. There are no license applicants in these jurisdictions, by virtue of their opting out of the regulatory framework. These public resources are intended specifically to ensure compliance with M.C.R.S.A., and should not be diverted to communities that fall outside of that regulatory framework. For legal purposes, banned communities have literally outlawed all medical cannabis production within their jurisdictions, placing 100% of their cannabis enforcement budgets outside the purview of State Licensing Agencies. Their own local code enforcement budgets should pay for these bans, not state licensing fees or cannabis industry taxes. Any appropriation of M.C.R.S.A. funds spent on “enforcement” in banned areas is equivalent to a government taking from Licensees, by forcing them to pay for local prohibition programs that do not apply to their businesses or local communities.

**5) Amounts of Water Used to Grow Cannabis.** Determining the amounts of water used in the cultivation of cannabis depends on local soil and climate conditions, on the strains of cannabis and the size of the plants being grown, and on the growing techniques being used by the farmer. Obviously, the amounts of water needed to harvest a large plant in the desert will be much higher than the amounts needed to harvest a smaller plant on the coast.

Many cannabis farmers have been tracking their water usage for years, and now that cannabis cultivation will be licensed by the State, conducting and sharing this research will be much easier. But even now, in areas where cannabis bans are in effect, or in cases where prosecutors decide to target cannabis farmers with criminal prosecution, the collection of such water-use data is considered to be “evidence of wrongdoing”, and the documents containing research are seized, to either be destroyed or used against the farmer. So, despite cannabis farmer’s best efforts, conducting agricultural research is made very difficult by the agents of cannabis prohibition. Hopefully this will start to change once M.C.R.S.A. is implemented and enforced.

Some cannabis farmers have postulated that it takes around 1 gallon per day (averaged over the entire grow cycle), to produce each pound of cannabis. So a 10 pound plant, growing for around 6.5 months, would consume approximately 1820 gallons of water, or 182 gallons per pound. However, this calculation does not take into account the variables of local soil and climate conditions, or of different strains and different growing techniques, so more research is definitely required before such a blanket number should be cited by anyone.

For our purposes here, I’ve calculated how much water I used to harvest at least 4 pounds of cannabis per plant, in the very hot conditions of Northern California’s Sacramento River Valley. The soil type here is mostly red clay, and a typical grow cycle is around 182 days (April 1 – October 15). In that time, I would use up to 1200 gallons per plant, or 300 gallons per pound of cannabis. I think this is approaching the high end of water usage, considering the incredible heat and dry soil conditions present in this area, compared to most of the State.

Many farmers use far less water, due to their growing techniques, the sizes of their plants and more favorable soil and climate conditions. It’s impossible to calculate the amounts of water used to grow cannabis in California, without first taking actual surveys of licensed cultivators, throughout the State, and then extrapolating the data. For our limited purposes here, I think it’s fair to say that it takes somewhere between 100 gallons - 300 gallons of water to produce one pound of cannabis.

**6) Amounts of Water Used to Grow Other Crops.**

The amounts of water required to produce other crops is actually quite well known, and is based on many years of empirical research. Here's a link to an Article in Huffington Post that provides a good analysis of water usage from several commercial crops and agricultural commodities grown or produced here in California.

<http://m.huffpost.com/us/entry/5952862>

As you can see from this list, cannabis is actually on the low end of water usage compared to many commercial crops. Here are the number of gallons of water it takes to produce one pound of some common agricultural commodities grown or produced in northern California:

|                       |  |
|-----------------------|--|
| Sunflowers (for oil): | 814 gallons per pound  |
| Rice:                 | 299 gallons per pound  |
| Plums:                | 261 gallons per pound  |
| Barley:               | 237 gallons per pound  |
| Figs:                 | 401 gallons per pound  |
| Corn (for oil):       | 309 gallons per pound  |
| Olives:               | 361 gallons per pound  |
| Beer:                 | 296 gallons per gallon (x 15.5 = 4588 gallons <u>per keg</u> of beer)                              |
| Beef:                 | 1847 gallons per pound   |
| Almonds:              | 1929 gallons per pound   |
| Wine:                 | 872 gallons per gallon (5.2 bottles) (x 2.3 = 2005.6 gallons <u>per case</u> / 12 bottles of wine) |
| Coffee:               | 1056 gallons per gallon of coffee  |
| Eggs:                 | 53 gallons per egg / 636 gallons per 12 pack   |

Here are two more water use ratios, for crops not typically grown in California, that are certainly sold and consumed here by millions of people:

|            |                          |
|------------|--------------------------|
| Chocolate: | 2061 gallons per pound   |
| Vanilla:   | 15,159 gallons per pound |



## 7) Market Value Comparisons of Cannabis to Other Crops in California.

Here's where the numbers get interesting, and this is where we can see the main flaw in the logic of treating cannabis differently than other agricultural commodities. It has far more value per pound, than any other crops or agricultural products in California's market today.

Cannabis has a current wholesale value of between \$1500 - \$1800 per pound (outdoor) and \$1800-\$2000 per pound (indoor). Even when supply was higher and demand was lower, the price range for high quality cannabis in California has never dropped below \$800 - \$1200 per pound. Many factors play into this, including the prevalence of cities and counties within California that ban cannabis cultivation and distribution, artificial restrictions placed on licensed production or consumption, the supply and demand ratios within California and the supply / demand imbalances within neighboring states.

The values of all the crops and commodities mentioned above are minuscule compared to the value of cannabis. This means that cannabis farming provides much higher relative benefits to State Commerce, and to the communities that license cannabis farming, than any of the established agricultural businesses that currently dominate California's economic and political landscape. Cannabis farming provides far greater sales tax benefits than any other crops, and cannabis farms provide good paying jobs that raise the standard of living for their employees. The cannabis industry was one of the only new industries in California exhibiting growth, before cities and counties started riding the "ban wagon". With licensed cultivation now on the horizon, this will once again be the case. The money being generated by cannabis farms themselves, and by their employees, is spent in their local communities. And all of the new agricultural lands put into production will also increase local property tax revenues. For all of these reasons, it makes no economic sense to penalize cannabis farmers for using water, so long as no environmental damage is done in the process of obtaining the water, whether it's from groundwater supplies or from tributaries. S.W.R.C.B. and C.D.F.W. should treat cannabis farmers no differently than other commercial agricultural businesses, when it comes to water usage. I will ask our Legislators to consider amending the language of M.C.R.S.A. to remove any requirements that force your Agencies to do otherwise.

This concludes my Public Comments to the State Water Resources Control Board and California Department of Fish and Wildlife. Please review this document, as part of your ongoing deliberations, and include it within your Workshop Survey and within the public record, in regards to the subject of water management and licensing under M.C.R.S.A.



I thank you for your time and consideration in these matters. I am available to discuss these matters in more detail, in either a voluntary or professional capacity.

Sincerely, Jason Browne (Expert Witness / Cannabis Industry Consultant)

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