

## Coats, Brian@Waterboards

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**From:** Marcus, Felicia@Waterboards  
**Sent:** Saturday, July 21, 2018 3:23 AM  
**To:** Westhoff, Steven@Waterboards  
**Subject:** Fwd: IDP similar to PWM claimed IDP

Felicia Marcus  
Chair  
State Water Resources Control Board  
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Sent from my iPad so forgive typos or terseness

Begin forwarded message:

**From:** Marcia Wright <[marciawright@comcast.net](mailto:marciawright@comcast.net)>  
**Date:** July 21, 2018 at 12:42:36 AM PDT  
**To:** John Moore <[jmoore052@gmail.com](mailto:jmoore052@gmail.com)>  
**Cc:** Ron Weitzman <[ronweitzman@redshift.com](mailto:ronweitzman@redshift.com)>, <[DDWrecycledwater@waterboards.ca.gov](mailto:DDWrecycledwater@waterboards.ca.gov)>, Dorene D'Adamo <[ddadamo@waterboards.ca.gov](mailto:ddadamo@waterboards.ca.gov)>, Felicia Marcus <[felicia.marcus@waterboards.ca.gov](mailto:felicia.marcus@waterboards.ca.gov)>, Frances Spivy-Weber <[frances.spivy-weber@waterboards.ca.gov](mailto:frances.spivy-weber@waterboards.ca.gov)>, Steven Moore <[smoore@waterboards.ca.gov](mailto:smoore@waterboards.ca.gov)>, Tam Doduc <[tdoduc@waterboards.ca.gov](mailto:tdoduc@waterboards.ca.gov)>, Tom Howard <[thoward@waterboards.ca.gov](mailto:thoward@waterboards.ca.gov)>, Claude Hoover <[claudio.hoover@gmail.com](mailto:claudio.hoover@gmail.com)>, <[DSullivan@mpc.edu](mailto:DSullivan@mpc.edu)>, Glen Dupree <[glen@merrillfarms.com](mailto:glen@merrillfarms.com)>, <[Hart22584@comcast.net](mailto:Hart22584@comcast.net)>, <[KenEkelund@redshift.com](mailto:KenEkelund@redshift.com)>, Mike LeBarre <[mike.lebarre@outlook.com](mailto:mike.lebarre@outlook.com)>, Mke Scattini <[daisiegirl25@aol.com](mailto:daisiegirl25@aol.com)>, Richard Ortiz <[OrtizRichard150@yahoo.com](mailto:OrtizRichard150@yahoo.com)>, Jane Parker <[district4@co.monterey.ca.us](mailto:district4@co.monterey.ca.us)>, John Phillips <[district2@co.monterey.ca.us](mailto:district2@co.monterey.ca.us)>, Luis Alejo <[district1@co.monterey.ca.us](mailto:district1@co.monterey.ca.us)>, Mary Adams <[district5@co.monterey.ca.us](mailto:district5@co.monterey.ca.us)>, Simon Salinas <[district3@co.monterey.ca.us](mailto:district3@co.monterey.ca.us)>, Buill Monning <[Nicole.Charles@sen.ca.gov](mailto:Nicole.Charles@sen.ca.gov)>, Mark Stone <[Assemblymember.Stone@outreach.assembly.ca.gov](mailto:Assemblymember.Stone@outreach.assembly.ca.gov)>, Carly Mayberry <[cmayberry@montereyherald.com](mailto:cmayberry@montereyherald.com)>, russell mcglathlin <[RMcGlothlin@bhfs.com](mailto:RMcGlothlin@bhfs.com)>, <[erickson@stamplaw.us](mailto:erickson@stamplaw.us)>, <[erica.burton@noaa.gov](mailto:erica.burton@noaa.gov)>  
**Subject: Re: IDP similar to PWM claimed IDP**

John and All,

DPR projects are not permitted in California even with a narrow focus of sewage. Regulations for DPR will not take place until "the knowledge gaps are addressed and additional research is conducted related to specific public health issues." How PWM, which is a unique DPR project, managed to get a permit is a mystery to me, especially in light of the toxic cocktail of heavily polluted source waters it plans to purify, including 2 EPA designated 303d impaired water entities known to contain Ag legacy pesticides, Blanco Reclamation Ditch and Tembladero Slough.

Unfortunately, as it stands, SWB's proposed DPR research will not be done by medical school physician specialists and medical researchers under their supervision. The research will be done by environmental civil engineers. Civil engineers have the qualifications and training to build and evaluate sanitation

projects. Recycle for potable reuse is a human health impactful project, which necessitates evaluation by independent physician specialists. As good as civil engineers may be in their lane of credentials and training, they are unqualified to carry out medical research. I hope that the SWB will re-consider their initial decision and re-direct all DPR research grants to medical schools.

Keep in mind that even trying to “purify” domestic and medical sewage for human consumption, cooking, and bathing represents “a very high health risk” per the opinion of internationally renowned infectious diseases physician specialist, Dr. Peter Collignon, M.D., who has been a consultant for WHO and other health entities worldwide including the USA, said: ***“Although this is technically feasible, we need to be very wary. Such recycling is associated with very high ongoing monetary and energy costs, but, most importantly from a health perspective, is a “very high-risk” proposal that reverses 150 years of good public health policy of striving to keep sewage out of our drinking water supplies...Sewage contains very high concentrations of pathogens and drugs. Viruses (the most difficult pathogens to remove) can occur in concentrations higher than 106 per litre — orders of magnitude higher than in even the most polluted rivers. The technical and human performance needed to remove viruses safely will have to be proportionately higher than current practice — difficult to achieve...We would also need to ensure that the system will work all the time... Reverse osmosis (RO) is the most effective way to remove viruses and drugs from sewage, and should remove virtually all viruses and drugs. Surprisingly, few in-use data are available to check this. RO membranes seem to leak. One study found that RO only removed 92% of antibiotics. Recent safety reviews, including an Australian review (based on the previous study), showed viruses were still detected post-treatment at three of seven sites on some occasions. The calculated virus removal ranged from 87% to > 99.995%, which equates to a “log reduction” of 1 to 5...This less than optimal performance was when the system was not known to be malfunctioning; lowered performance might occur as often as 5 days a year.”***

Dr. Collignon’s concerns regarding health risks of sewage recycle for potable reuse: industry known flaws in advance treatment technology, insufficiencies of surrogates and indicators used, potential for human error, lag between notification monitoring test reports and approved responses to detected unregulated pathogens and/or chemicals that have already passed through the AT process directly into raw water sources like aquifers are shared by Dr. Ted Schettler, M.D., M.P.H., SEHN’s Science Director, who was quoted in a 2017 article as follows:

***“...How well reverse osmosis works to filter out other contaminants, like pharmaceuticals and pesticides, depends on the specific chemical and the amount of pollution in the water. The water reuse textbook states that reverse-osmosis membranes strain out 90 to 96 percent of the toxic pesticide atrazine, for example, and 85 to 95 percent of the poisonous element arsenic...Solvents and other industrial chemicals that can disrupt hormones in the body’s endocrine system are particularly worrisome. With a litany of dreadful health effects like cancer, birth defects, and infertility, these endocrine-disrupting chemicals can be extremely toxic even at the very low levels that could potentially get through even the most advanced water treatment, including reverse osmosis and advanced oxidation. “It’s not reassuring to me to hear that chemicals are present “only” at parts per trillion levels,” said Ted Schettler, a physician and the science director of the non-profit Science and Environmental Health Network. “There are many chemicals that you would worry about at parts per trillion.” Parts per trillion is really tiny — like having one drop of poison spread throughout 20 Olympic-size pools. For some chemicals, we don’t even have analytical methods that can accurately detect such low concentrations. Yet even such a minuscule amount can have an effect on our bodies. “Our bodies’ hormone systems operate at low parts per trillion levels,” Schettler explained. “The hormone receptors are exquisitely sensitive to even minor shifts in those concentrations.” The Environmental Protection Agency counts about 85,000 industrial chemicals registered for current use, but requires additional toxicity testing for only about 200 of them. Pesticides in home and garden products, which are regulated by the EPA’s Federal Insecticide, Fungicide, and Rodenticide Act, can also make their way down the drain, as can FDA-regulated pharmaceuticals, which people excrete naturally after use. This all means that tens of thousands of different chemicals may be present in sewage before treatment —***

***and after treatment we still don't have a full idea of the range of chemicals that get through. "What you really need to do is figure out what's in the water, and at what levels," Schettler said.***

Cancer researcher, Dr. Steven Oppenheimer, who President Obama honored at the WH and Dr. Edward McGowan, M.D. Ph.D. with 40 years experience in water related projects and Dr. John Ackerman, M.D., M.P.H. all echo afore-mentioned public health concerns. Advance treatment technology seems to be surging forward with no supportive medical research evidence regarding public health and safety.

Even within environmental engineering circles, there are doubts about ATP ensuring human health and safety. Two months ago Dr. Charles Gerba, respected U of Arizona environmental engineer professor, published a report concluding that current LRV's assigned to advance treatment processes are inadequate to protect the public from risks of ARB's.

Dr. David Edwards @ Virginia Tech ( who assisted Flint and DC residents ) reported that recent research showed that pathogens in biofilms in distribution pipelines can re-constitute themselves and pose serious health risks when they reach POU taps or shower heads. Dr. Edwards also worried that lowered flow rate regulations for plumbing fixtures contributed to a more concentrated pollutant load in sewage with diminished greywater diluent presenting a significant future challenge for potable reuse ATF's.

Dr. David Spath, former DDW Chief and a member of the Advisory Group, also expressed concerns about health risks posed by DPR in a recent interview:

***"No one knows exactly what's in sewage at any given time — people and businesses don't dump things down the drain on a regular schedule. It's very hard for a water scientist or public health official to know everything to look for. And since detecting tiny amounts of chemicals relies on identifying them by their unique characteristics, it's nearly impossible for them to recognize a chemical they weren't already looking for.***

***Of the contaminants that are detected in recycled water, many of them have unknown health effects. "There's a lot [of chemicals] out there, that show up in monitoring, but that we don't really know what the broad effects might be from them," said David Spath, the former chief of the Division of Drinking Water and Environmental Management for the State of California. Even more troubling is that a combination of chemicals can be more toxic than the sum of their parts. It could be a big problem, according to Spath, "if you get three or four chemicals that are all endocrine disruptors that disrupt the same endocrine process, or if you have two or three chemicals that are all carcinogens that result in the same carcinogenic endpoint."***

***Only one major epidemiological study has documented the human health effects of drinking recycled water. Conducted by a private research corporation and commissioned by a water utility, the study is now 25 years old. ("The chemicals that they're now looking for weren't even in anybody's vocabulary at the time," Spath said.) The science was inconclusive: Because of confounding factors like smoking and alcohol consumption, researchers couldn't prove or disprove the notion that drinking recycled water caused cancer or heart disease. The fact that some chemicals could disrupt hormone functioning hadn't yet been discovered at the time the study was published. "It is a difficult situation," Spath added.***

Sewage especially medical sewage from hospitals and nursing homes is loaded with viruses and pharmaceutical compounds specifically designed not to be easily degraded. Antibiotic resistant microbes and genes are recognized by WHO, the CDC, and the EU as the most significant health threat for both developed and developing nations today. ARB's and viable ARG's are so tiny that they can slip through advance treatment barriers and reconstitute themselves when they come in contact with trace contaminants like metal or other trace chemicals and plasmids. California, unlike 22 other states, only

requires medical facilities to report a handful of narrowly defined superbug infectious cases and the reporting procedure is so onerous, it's questionable how consistently medical facilities follow through. The latest estimate from the CDPH was that superbug infections cost approx \$3 Billion in medical costs annually. Superbug infections don't always kill patients. But long term health damages occur - e.g. some types of heart disease are now recognized to have a viral infection cause. It's been suggested that ARB's and ARG's be included in CEC lists so there's formal recognition by regulatory agencies outside of medical circles.

Currently most CA. county labs with only ELAP certification do not have the expertise, equipment, or budget to test for waterborne ARB's and ARG's, which are viable but not cultureable (VBNC). ELAP labs use MPN testing indicators but that does not give an accurate evaluation of the viability of microbes. The US Coast Guard refused to adopt MPN to test water in their ballasts for that reason. Furthermore, because regional wastewater treatment plants are recognized as "hot spots" reservoirs for ARB's and ARG's, it's worrisome to consider what antibiotic resistant microbes and protein gene matter RWTP's pass along in their secondary treated effluent feed to ATP's, which are capable of breaching membranes and RO processes.

I hope the SWB is cautious and does due diligence, by seeking input from physician specialists in academia ( e.g.. infectious diseases specialists, endocrinologists, neonatal/pediatric specialists, oncologists), as well as funding medical research studies, before signing off on any regulations for DPR. To do otherwise is playing Russian Roulette with human lives, particularly vulnerable population groups like fetuses and children, the elderly, immune compromised groups like recovering cancer patients and HIV patients and organ/stem cell transplant patients.

PWM's permit should definitely be reviewed, that's certain, since DPR regulations do not yet exist. Furthermore, why Seaside Aquifer was designated as a suitable potable raw water source needs additional scrutiny.

Fort Ord's Site 39 sits right above Seaside Aquifer. The army's cleanup focused mainly on 3 contaminants - antimony, lead, and copper according to the Vice-Chair of Fort Ord Citizen Advisory Group. Ten pages of contaminants are associated with Fort Ord military activities in the course of 70 years before it was decommissioned. Fort Ord is designated as a National Superfund Site of High Priority. Live munitions are being found to this day. The army has not answered FOCAG's questions about the fate and disposal of all the listed contaminants. Site 39 was one of the largest Army infantry training and fire fighting ranges in the United States. PFA contaminants in fire fighting foam associated with military sites have been called a "PR nightmare" per news articles published a month ago, because long term health impacts by exposure to trace amounts of PFA's leached into groundwater have been acknowledged.

Fort Ord was also home to CDEC, Combat Development Experimentation Command ( i.e. chemical warfare). A hydraulic trough prevented Seaside Aquifer waters from being distributed to CalAm customers, but a new pipeline built in conjunction with PWM construction will change that natural health protection for MP residents in the future. Water quality testing of inland sentinel wells and potential chemical changes effected by injecting non-native PWM waters directly to the aquifer have only been contracted to a consultant firms this spring. Some might say that this should have been done years ago as part of PWM's EIR.

Until MP residents are presented with an alternate medically safe ( as opposed to merely legally safe) drinking water source, Carmel River should continue to be our main drinking water source, imho. PWM's finished product would be suitable for Salinas Valley Ag industry irrigation of food crops. Considering recent outbreaks of contaminated vegetables, an upgrade in recycle water quality for Ag use seems appropriate and long overdue.

Best Regards,  
Marcia

On Jul 20, 2018, at 7:43 PM, Ron Weitzman <[ronweitzman@redshift.com](mailto:ronweitzman@redshift.com)> wrote:

John, not only farmworkers would be at risk if pesticide-contaminated water is used for irrigation. Everyone who eats the irrigated produce would be at risk, as would the entire Salinas Valley economy. --Ron

**From:** John Moore [<mailto:jmoore052@gmail.com>]

**Sent:** Friday, July 20, 2018 6:46 PM

**To:** Ron Weitzman

**Cc:** Marcia Wright; [DDWrecycledwater@waterboards.ca.gov](mailto:DDWrecycledwater@waterboards.ca.gov); Dorene D'Adamo; Felicia Marcus; Frances Spivy-Weber; Steven Moore; Tam Doduc; Tom Howard; Claude Hoover; [DSullivan@mpc.edu](mailto:DSullivan@mpc.edu); Glen Dupree; [Hart22584@comcast.net](mailto:Hart22584@comcast.net); [KenEkelund@redshift.com](mailto:KenEkelund@redshift.com); Mike LeBarre; Mke Scattini; Richard Ortiz; Jane Parker; John Phillips; Luis Alejo; Mary Adams; Simon Salinas; Buill Monning; Mark Stone; Carly Mayberry; russell mcglathlin; [erickson@stamplaw.us](mailto:erickson@stamplaw.us); [erica.burton@noaa.gov](mailto:erica.burton@noaa.gov)

**Subject:** Re: IDP similar to PWM claimed IDP

Thanks, I was referring to the so called "holy water" rule whereby a clearly DPR project like PWM could get an exemption from DPR regs once adopted by residing in a Basin for just two months. I share your concern about this untried poisonous mix and farm workers, but my only opportunity to be heard is a promised hearing before the Judge of the Watermaster of the Seaside Basin, wherein I am attempting to convince the judge that he should not allow the PWM stuff to be injected into the Basin w/o and until it has been approved for DPR.

Meanwhile, the stuff could be used for non potable purposes, or, even injected into the Carmel river(for CDO credit). The problem with injecting high risk stuff in a Basin is that it can contaminate the whole basin, requiring two or more rain seasons to cleanse, whereas with a river, if contamination is found, the river will recover in less than a day as long as injection stops I hope others will join me. John M. Moore

On Fri, Jul 20, 2018 at 5:23 PM, Ron Weitzman <[ronweitzman@redshift.com](mailto:ronweitzman@redshift.com)> wrote:

All, I do not know of any. I'm also concerned about the side contract Pure Water Monterey made with the county's water resources agency to provide growers with irrigation water subject only to tertiary treatment of the same brew of sewer and ag runoff water. The side contract was necessary to secure county approval of PWM's access to Salinas Valley ag water. Plants irrigated with that water are likely to be deformed and poisonous. The side contract acknowledges such a problem but provides no clear source of funds to correct it. The burden could easily fall on Monterey Peninsula ratepayers. --Ron

-----Original Message-----

From: [jmoore052@gmail.com](mailto:jmoore052@gmail.com) [<mailto:jmoore052@gmail.com>]

Sent: Friday, July 20, 2018 4:00 PM

To: Marcia Wright; [ronweitzman@redshift.com](mailto:ronweitzman@redshift.com);

[DDWrecycledwater@waterboards.ca.gov](mailto:DDWrecycledwater@waterboards.ca.gov)  
Subject: IDP similar to PWM claimed IDP

Do you know of any Ca Potable reuse project that would be similar to the PWM project even if it only recycled sewage? John  
Sent from my iPhone=