

From: [Barnard, Randy@Waterboards](mailto:Barnard.Randy@Waterboards)
To: WB-DDW-RecycledWater
Cc: [Barnard, Randy@Waterboards](mailto:Barnard.Randy@Waterboards)
Subject: FW: Proposed Framework for Regulating Direct Potable Reuse in California
Date: Tuesday, May 15, 2018 12:53:51 PM

Randy Barnard, PE
Recycled Water Unit Chief

Recycled Water Unit
Division of Drinking Water
State Water Resources Control Board
1350 Front St., Rm. 2050
San Diego, CA 92101

Phone: (619) 525-4022

Email: Randy.Barnard@waterboards.ca.gov

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/RecycledWater.shtml

From: Brenda Adelman [mailto:rrwpc@comcast.net]
Sent: Saturday, May 05, 2018 9:33 PM
To: Barnard, Randy@Waterboards <Randy.Barnard@waterboards.ca.gov>
Subject: Proposed Framework for Regulating Direct Potable Reuse in California

Randy:

I was not able to attend the April 23, 2018 Public Workshop in Oakland on the Proposed Framework for Direct Potable Reuse. As an educated layperson, representing hundreds of Bay Area Residents who own property on the Russian River, we have great concern about the prospect of merging treated wastewater with the drinking water supply. (Recent monitoring has indicated that waters and sediments on the fringe of Santa Rosa have the most obvious toxic contents, as opposed to agricultural areas. But those findings may be amended at a later time.)

RRWPC has followed the development of the Recycled Water Policy for the last ten years. At almost every opportunity we have submitted comments and documents that support my comments to the State Board. Most of our writings can be found on RRWPC's website at http://www.rrwpc.org/rrwpc/?page_id=3007 (and in State Water Board files). Almost all of our comments have been focused on a single issue and to my knowledge, have all thus far been ignored by your Board. I don't recall ever seeing relevant responses to our comments.

The Board has focused on CEC's and appointed a scientific panel to address toxicity issues. CEC's are toxins that include endocrine disrupting substances, but also include many other toxins as well. The critical differences have been pointed out by many endocrinology

scientists in thousands of peer reviewed studies. With ordinary toxins, 'the dose makes the poison', an assumption upon which conventional risk assessment is based. But with endocrine disrupting chemicals, of which over 1400 have thus far been identified, the opposite is true. Very minute exposures can trigger a multitude of illnesses, birth defects, and other negative health impacts. Furthermore, the incidence is non-monotonic, which means that it is impossible to predict when an exposure will have toxic effects. It could occur during a minute exposure or a great one. Sometimes timing of the exposure is critical, as with pregnant women. Birth defects can occur during very narrow windows of time during fetal development and it becomes critical for a pregnant woman to be able to avoid exposure.

One important example is that many tests have been conducted over the last 25 years and discovered that male fish swimming downstream of a wastewater outfall, have often been feminized. This is easily demonstrated by checking male fish for vitellogenin. Berkeley scientist Tyrone Hayes has conducted hundreds of studies on frogs and discovered that exposure to atrazine regularly results in both male and female reproductive organs such that a male frog is able to be impregnated and give birth. We also know that the sexual development and health of human children can be negatively affected by these chemicals as well.

Every year there are more and more unregulated, and usually unmonitored toxins developed for household, personal care, and other products. Occurrence is ubiquitous. Unknown combinations can and do occur in the waste stream. No treatment has been proven to get everything out, and it's probably impossible to know all the individual contents of the toxic stew, since there are at least 80,000 chemicals on the market. There is little or no vetting of new products to determine toxicity before they come on the market and even when studies are done, and toxicity is determined to be harmful, they somehow often remain available to the unknowing public. In the meantime, there are almost daily reports of species disappearing due to human activities, toxic chemicals found in remote melting icefields, and mountains of toxic plastic killing the ocean, its creatures and its habitat.

I am horrified that your scientists authorized the application of tertiary treated wastewater on school yards, playgrounds, parks, etc., where the most vulnerable humans can be exposed to dangerous chemicals, which can combine with all the other exposures over a lifetime to probably shorten life expectations. I don't think this process is anywhere close to being able to provide assurance that DPR will be safe.

RRWPC feels it is a travesty that no endocrinologists, to our awareness, have been appointed to the scientific panel and involved with the findings. We would like to see our comments addressed in a meaningful way. Thank you.

Sincerely,

Brenda Adelman

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Brenda Adelman
Russian River Watershed Protection Committee
P.O. Box 501
Guerneville, CA 95446
Email: rrwpc@comcast.net
RRWPC Website: www.rrwpc.org