September 1, 2023

Chairman E. Joaquin Esquivel
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Subject: Direct Potable Reuse Regulations (SBDDW-23-001)

Sent via Email: Commentletters@waterboards.ca.gov

Dear Chairman Esquivel:

On behalf of WateReuse California (WRCA), we are pleased to submit comments on the draft Direct Potable Reuse (DPR) regulations. WRCA represents 217 local agencies and businesses dedicated to expanding the use of recycled water in California.

A subset of the WRCA DPR Working Group has been discussing these regulations with the Division of Drinking Water (DDW) since 2021 and several problematic issues have been addressed in the latest version of the regulation. We thank the State Board. Rather than acknowledging these changes, this letter will focus solely on issues where WRCA would like to see revisions in the final draft regulations.

Flexibility for the Future: Broad Alternatives Clause Needed

Treatment and monitoring technologies in the water industry have advanced significantly in recent decades. These advancements, which strive for greater efficiency and accuracy, are fueled by research and will continue to accelerate and adapt to the impacts of ever worsening climate change. For these reasons, WRCA believes that a DPR regulation that limits us to today's knowledge will exclude us from tomorrow's advancements. This scenario would be a loss for everyone involved: the State Board, the water industry, and the public. The history of potable reuse shows a continuous improvement in our understanding of how to protect public health. Treatment requirements have evolved from RO alone to include high-dose UV and then UV/AOP. These changes were grounded in the experience of the first groundwater recharge projects that allowed the State Board to improve the IPR requirements over a 40-plus year window. More recent advancements have shown public health benefits with further adaptations to the standard full-advanced treatment train, including the introduction of UV/HOCl as an alternative to UV/H_2O_2 and the benefits of O_3/BAC treatment for pathogen and

chemical control. We note that the regulations for Groundwater Replenishment and Surface Water Augmentation developed in concert with the aforementioned research and innovation. This long period of advancement implies that our future trajectory will not change—further experience in potable reuse will continue to drive advancements that improve our ability to protect public health. The DPR regulations should have the flexibility to adapt alongside future innovation.

The best way to take advantage of these future advancements in DPR is to build flexibility into the regulations via an alternatives clause that mirrors what has been twice unanimously approved by the State Board and the Office of Administrative Law. This provision, included in the Groundwater Replenishment and Surface Water Augmentation regulations, requires that agencies receive approval from both DDW **and** an independent scientific advisory panel that the "alternative" proposed is protective of public health. DDW would remain fully in control to decide whether to allow an alternative. As such, the absence of the alternatives clause in the DPR regulation is irreconcilable with the State Board's own regulatory precedents and a glaring omission. **WRCA strongly agrees with the 2017 Water Board Statement of Reasons explaining the need for an Alternatives Clause in the Surface Water Augmentation regulations and believes that the same rationale exists for the DPR regulation (see below):**

SBDDW-16-02
Surface Water Augmentation
February 14, 2017

Section 60320.330, Alternatives.

The development of treatment processes associated with the removal of contaminants of concern to public health, as well as the means of assessing the reliability and efficacy of such treatment processes, is dynamic. As a result, section 60320.330 recognizes this circumstance by allowing alternatives to the requirements of Article 5.3. Any substantive alternative would result in a change in operation that could potentially impact a project's ability to be protective of public health and, therefore, if the change is significantly different from the process or approach presented to the public by way of section 64668.20 of Article 9 (Public Hearings), a public hearing may be prudent.

Therefore, as required in paragraphs (1) through (3) of subsection (a), before being allowed to utilize an alternative, the SWSAP WRA is required to (1) demonstrate that the alternative would provide an equivalent (or better) level of protection of public health than what would be required otherwise via the proposed regulations, (2) receive written approval from the State Board prior to implementing the alternative, and, (3) if directed by the State Board or Regional Board, conduct a public hearing on the proposed alternative.

In addition, as previously noted, section 13562(a)(2) of the Water Code mandates that an Expert Panel, convened by the State Board, make a finding that the SWA criteria adequately protect public health. Therefore, because of the prospective nature of section 60320.330 allowing alternatives – where an alternative may be considered without the Expert Panel being able to contemplate the specific alternative at the time of their approval of these regulations - subsection (b) requires an independent scientific advisory panel, similar in composition to the Expert Panel, to review the SWSAP WRA's demonstration required in subsection (a).

Finally, while updates to the DPR regulations could address future issues, WRCA notes that with its significant workload, the State Board rarely opens and updates recycled water regulations. For example, the Title 22 non-potable regulations have not been updated for 23 years and the Cross Control Connection Handbook (formerly Title 17) was last updated in the 1980s. We urge the State Board to consider inclusion of the alternatives clause covering the entire DPR regulations.

Need for Additional Flexibility in the Current DPR Regulations

While we cannot foresee the future, we believe there are several places in the current DPR regulations where alternatives or additional flexibility in the regulations are needed, or will be needed, in the not too distant future. These examples are not intended to be exhaustive, but to highlight the importance of regulatory flexibility and the benefits of a broad alternatives clause. These example points could be addressed via direct edits specific to the topics within the regulation, which is not the point of this discussion. Our intent is to highlight that as we implement DPR projects, new wrinkles will emerge that do not fit within the current draft DPR regulations.

Controlling TOC in purified effluents: blending vs. dilution.

Controlling the concentration of total organic carbon (TOC) in purified effluents has been a consistent requirement in California's potable reuse regulations. The State Board has offered different approaches to ensure that the TOC of wastewater origin remains at acceptably low levels. Under the Groundwater Replenishment regulations, these approaches include the use of treatment alone (e.g., treating the full flow of water through RO) or a combination of treatment and blending (e.g., tertiary treatment followed by commingling with diluent waters). In all cases, the State Board has required that the final effluent water—regardless of its origin or level of treatment—maintains a TOC less than 0.5 mg/L. In line with this precedent, the 2023 draft regulations were updated to allow projects to use **blending** to meet their TOC critical limit. Whereas the TOC critical limit was previously specified to be a static value of 0.5 mg/L, it may now exceed 0.5 mg/L when effluents are blended with an untreated source water or a finished water (§64669.50.n.1). WRCA endorses the flexibility that the 2023 draft provides on the TOC critical limit and believes it gives greater consistency with the State's previous potable reuse regulations.

An analogous approach for meeting the TOC critical limit is through **dilution** that occurs when purified water is mixed within a reservoir. Through O_3/BAC and RO treatment, DPR projects can produce purified waters with ultra-low TOC concentrations (i.e., at or below 0.05 mg/L). The DPR regulations oblige projects to achieve these low concentrations by setting trigger levels whenever the RO permeate TOC exceeds 0.1 mg/L (§64669.50.j.2). Consequently, DPR projects discharging into small reservoirs will typically augment them with purified waters that are an order of magnitude below the critical TOC limit (0.5 mg/L). One important public health benefit of a large water body is that it can provide buffering (i.e., dilution) against peaks of higher TOC water. Through the process of mixing, influent TOC peaks that exceed 0.5 mg/L can be diluted to continuously maintain the TOC in the effluent of the reservoir at levels less than 0.5 mg/L.

Hydrodynamic modeling and tracer studies can be used to confirm the degree of dilution that occurs through mixing, providing a scientific basis for establishing a higher TOC critical limit for DPR projects using dilution in reservoirs. **Even though dilution offers the same protections as blending, reservoir projects cannot pursue an alternative TOC critical limit due to the narrowness of the alternatives clause**. Currently, the alternatives clause in the Chemical Control requirements excludes alternatives in two sections including the section related to TOC critical limits (§64669.50.n.1). Blending is cited as the only mechanism that can be used to seek higher TOC critical limits, meaning that a project providing equivalent water quality through dilution cannot seek an alternative. One notable project that would be too severely circumscribed by these constraints is the City of San Diego's raw water augmentation project, which is considering an option using Murray Reservoir to provide dilution and mixing. While this issue could be remedied by revisions to the sections cited above, *it demonstrates the benefits of broadening the alternatives clause to allow projects to seek and use all mechanisms that further protect public health*. While this example is based on an issue that has already been identified today, we urge the State Board to consider inclusion of a broad alternatives clause to allow flexibility to incorporate future advancements to promote public health.

Operator Certification

The draft regulations include a new requirement for a T5 chief operator and a T3 shift operator to oversee the entire DPR treatment train (§64669.35.b). Obtaining a treatment (T) certification requires significant experience in the operation of drinking water treatment plants. Gaining this experience is particularly difficult for advanced treatment operators because the experience at an AWPF does not presently count toward the requirements for T certification. Consequently, this new requirement imposes practical constraints for potable reuse agencies who have historically built their AWPF operations staff from operators with wastewater certifications. Given the new requirement for T5/T3 oversight of the facility, this effectively cuts off highly trained operators who originated on the wastewater side to oversee the DPR treatment train. In order for wastewater operators to gain the experience needed for T certification, they would need *additional* experience at a drinking water facility (beyond their AWPF experience). In the end, wastewater operators have an unrealistic path to DPR oversight, requiring them to be "super operators" that are simultaneously highly qualified wastewater operators (Grade 5), AWPF operators (AWT5), and drinking water operators (T5). In the future, it seems likely that exceptions could be granted that would allow a highly trained wastewater operator to oversee the entire DPR treatment train without needing to follow the traditional path to obtain a T certification. Due to the inflexibility in the current draft of the regulations, however, DPR project sponsors could not propose an alternative certification requirement for highly trained AWPF operators with wastewater backgrounds. While alternatives are allowed in the operator certification section to reduce the requirements for on-site staffing (§64669.35), there is not flexibility in the certification requirements. **WRCA believes that this lack of flexibility will unnecessarily limit the pool of candidates available for required DPR facility oversight and seeks a broadening of the alternatives clause to cover this issue**. In particular, WRCA suggests flexibility to streamline the certification of personnel for DPR projects including the possibility for wastewater operators with AWTO certification to be eligible for an alternative process to obtain T certification or to be exempted from T certification requirements. It is worth

emphasizing that the AWPF certification was originally intended to provide a consistent path for both wastewater operators (Grade 3 through Grade 5) and drinking water operators (T3 through T5) to become proficient at AWPF operation, and the AWT5 certification was designed to be sufficient for DPR oversight.

CEC Monitoring and Threshold Levels for DPR Projects

The draft DPR regulations (7-21-2023) require that DPR projects monitor for CECs in both their feed and treated waters and compare the measured levels against toxicological thresholds. This approach is straightforward for wastewater compounds with state-adopted drinking water thresholds, e.g., MCLs, NLs. However, for chemicals **without** state thresholds, projects must develop their own values based on human health risk assessments cited in the regulation. Projects are to use the following information and sources to monitor and develop thresholds for CECs:

- Public health goals
- California OEHAA or other state agencies
- U.S. EPA
- State Board scientific advisory bodies
- Other public health protective levels required by the State Board

Though the State Board has included a reference to State Board advisory bodies (i.e., panels) in this section, no one source of information is given greater priority over the other; each source of information is co-equal. We believe this approach is likely to create inconsistent and divergent CEC monitoring requirements statewide. For example, thresholds developed for a project overseen by State Board staff in one region may diverge from those developed for project in a separate region. In our view, a unified approach to CEC monitoring that is led by a single Water Board expert panel will best serve project proponents and the public. A unified approach to CEC monitoring was also recommended by the California DPR Expert Panel.

Enhance Existing Water Board CEC Panels to Address DPR Needs

The Water Board already has an active Recycled Water CEC Science Advisory Panel, comprised of external experts that meets every five years. The panel makes CEC monitoring recommendations for Groundwater Replenishment and Surface Water Augmentation projects that lead to formal monitoring requirements. WRCA believes this panel could be enhanced, funded, and jointly staffed by DDW and the Division of Water Quality (DWQ) to fill an analogous role as the primary source of information for CECs for DPR projects. In making consistent CEC monitoring and threshold determinations for DPR projects, we propose that this existing panel should use the sources of information cited in the regulations (PHGs, information from OEHHA or other state agencies, US EPA, other public heath projective levels required by the State Board) and serve as a clearinghouse to incorporate both existing and future information, as it already does successfully for IPR projects. Use of the Recycled Water CEC Expert Panel for DPR would be another significant step toward the promised synergy from the Drinking Water Program's transfer from the California Department of Public Health to the State Water Board in 2014.

Another option for a CEC DPR panel would be to use the Water Board CEC panel established by SB 230 Portantino in 2022. This program and panel were created to establish a unified, consistent, and science-based framework for CEC monitoring, of which DPR is a subset. WRCA commits to supporting supplemental funding in the state budget for these panels or to locating outside sources of funding for the panels to enhance their existing activities. WRCA is open to discussing a more permanent source of funding for this panel.

Independent of the panel that is selected, WRCA would also like the State Board to provide greater alignment in the CEC monitoring requirements from DDW and DWQ. Current monitoring redundancies lead to significant laboratory, financial, and logistical costs for IPR projects. Greater alignment would allow the Water Board to speak with one voice on CECs, improving the cost-effectiveness of monitoring and further promoting the widespread implementation of potable reuse. It is important to note that the majority of planned DPR projects in California are currently envisioned to be combinations of DPR and IPR, making the coordination between DDW and DWQ a topic of continuing importance.

CEC Changes Requested

The regulations should be changed to clarify that the State Board's scientific advisory bodies should be the primary information source for DPR projects for the monitoring of CECs and the development of thresholds. At minimum, these changes would impact the requirements described in both the Engineering Report (§64669.75.c.2.B) and Additional Chemical Monitoring sections (§64669.65.g). The modifications could further specify that the State Board's scientific advisory bodies should consider the other sources of information listed in these sections when determining uniform thresholds such as 1) PHGs, 2) findings from OEHHA, other state agencies, and US EPA, and 3) published scientific literature.

Overtreatment due to Current Pathogen Log Reduction Targets

The 2023 draft continues to require an excessive degree of treatment for pathogens. Several highly-qualified experts—including the California DPR Expert Panel and the Technical Work Groups leading the pathogen research studies for the State Board—have argued that the State's current pathogen log reduction targets (LRTs) are excessively conservative and out of alignment with the research conducted by the State Board itself. WRCA recommends an alternative, science-based set of LRTs that would adequately protect public health by providing a minimum 13/10/10 logs of reduction of virus, *Giardia*, and *Cryptosporidium*, respectively. With the application of a 4-log redundancy, the final LRTs would require 17/14/14 in lieu of the current 20/14/15 log requirements. In line with the California DPR Expert Panel's unanimous recommendation, WRCA believes the use of the high-quality new datasets with modern modeling approaches can identify LRTs that protect public health while avoiding the economic and environmental costs of overtreatment.

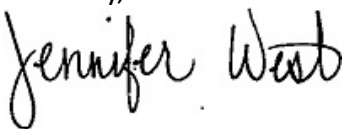
Conclusion

Since the passage of SB 918-Pavley in 2010, WRCA has been actively seeking the development of statewide DPR regulations. The completion of these regulations marks a significant new phase in water recycling in California, but it is important to remember that innovation and change in the water industry will continue. The DPR regulations, so important for the state's future water supply, must allow enough flexibility to at least consider and potentially embrace these changes.

We urge you again to consider the inclusion of a broad alternatives clause covering the entirety of the DPR regulations as you have done twice before. In addition, we urge you to address our suggested changes in the DPR regulations for CEC monitoring. We look forward to working with the State Board on this issue, as there is much to do.

If you would like to discuss these comments, please do not hesitate to reach out to me at Jwest@watereuse.org.

Sincerely,



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