

June 26, 2018

Chair Felicia Marcus and Board Members
c/o Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

**Public Comment
Proposed Recycled Water Policy Amendment
Deadline: 6/26/18 by 12 noon**

Sent via electronic mail to: commentletters@waterboards.ca.gov



RE: Comment Letter – Proposed Recycled Water Policy Amendment

Dear Chair Marcus and Board Members:

California Coastkeeper Alliance (CCKA) is a network of California Waterkeeper organizations working to protect and enhance clean and abundant waters throughout the state for the benefit of Californians and California ecosystems. We appreciate the opportunity to comment on the Proposed Recycled Water Policy Amendment (Amendment). Most cities in California use water once then dispose of it like waste at tremendous environmental and economic cost. Approximately 12 billion gallons of treated wastewater are discharged into the ocean or an estuary each day. Water recycling offers a significant untapped water supply, particularly in coastal areas facing water shortages that rely on imported water or are considering costly ocean desalination.

CCKA has been a long-time champion of ensuring water recycling is protective of the environment, that it is used in a reasonable and drought-resilient manner, and that we prioritize resources towards advancing potable reuse. In 2009, CCKA served on the stakeholder working group to develop California’s Water Recycling Policy, which among other things, set a state goal to increase water recycling by approximately two million acre-feet per year by 2030. CCKA has since worked with the State Water Board to adopt a clear and consistent regulatory pathway to help California’s water agencies meet its water recycling goals. CCKA also supported legislation, Senate Bill 918 Senate Bill 322 and Assembly Bill 574, requiring California to assess the feasibility and develop regulations for potable recycled water.

The local Waterkeepers are also champions for promoting potable reuse. Orange County Coastkeeper was a strong supporter of the Orange County Groundwater Replenishment System – the world’s largest highly advanced purified water recycling system. San Diego Coastkeeper was a strong champion of potable reuse during the approval of San Diego’s Pure Water Project. And Los Angeles Waterkeeper has supported large-scale potable reuse at the Hyperion plant that discharges nearly 250 MGD to the Pacific Ocean, Los Angeles’s Groundwater Replenishment (GWR) Project that will provide up to 30,000 acre-feet per year (AFY) – more than 9.7 billion gallons – of purified water by 2023 to replenish the San Fernando Groundwater Basin, as well as a recently-approved pilot project being pursued by the Metropolitan Water District to determine the viability of up to 150MGD of water reclamation at the Joint Water Pollution Control Plant in Carson.

While CCKA strongly supports potable reuse, we have growing concerns regarding the use of non-potable reuse. CCKA advocates for environmentally protective non-potable reuse regulations and has fought for rigorous monitoring for chemicals of emerging concern (CECs). In 2012, CCKA worked to prevent AB 2398, an omnibus bill that aimed to remove the Water Boards’ oversight of recycled water by no longer considering it a “waste” under the Water Code. And during California’s drought, CCKA and the California Waterkeepers have stressed the need to use recycled water reasonably – particularly when Proposition One funding is involved.

The original Recycled Water Policy was adopted 9 years ago, and in that time, California has made great strides in recycled water. Science and technology has advanced to where we now have confidence in recycling water to

drinking water standards that are protective of public health. Communities have moved past fearing “toilet-to-tap”, to now prioritizing potable reuse over purple pipe projects. California passed Proposition 1 that appropriated \$625 million towards recycled water, while the State Water Board provided extremely low interest loans. The Legislature has passed numerous pieces of legislation that removes barriers to recycled water and pushes the State Water Board to adopt potable reuse standards in a timely manner. And maybe most importantly, California survived a historic drought that forced us to value every drop of water and use it reasonably while not wasting such a valuable resource.

The Amendment is California’s opportunity to re-evaluate our priorities and encourage water recycling be put to a beneficial use while ensuring it is used reasonably and protective of both public and aquatic health. To this end, the State Water Board should:

- (1) Expressly state that all recycled water in California must be used for beneficial uses and used reasonably and not wastefully, and that the reasonable beneficial requirement shall be incorporated into all permits governing recycled water;
- (2) Set a statewide goal of eliminating treated ocean wastewater discharges;
- (3) Require each recycled water project to conduct a site-specific antidegradation analysis, but in the alternative, ensure Salt and Nutrient Management Plans and General Reclamation Orders have legally sufficient antidegradation analyses;
- (4) Maintain the incorporation of the bioanalytical screening methods into the CEC Monitoring Program and invest in research to expand a bioscreening toolbox;
- (5) Reconvene the Expert Panel every three years and streamline the process by incorporating the Expert Panel’s procedural recommendations on creating a flexible and responsive CEC Monitoring Program;
- (6) Direct future Expert Panels to develop monitoring protocols to detect CECs that impact aquatic health and provide the resources necessary to develop a marine and inland surface waters CEC monitoring protocol that is protective of aquatic health;
- (7) Direct future Expert Panels to investigate the risk and potential health exposure of cumulative CECs at low levels;
- (8) Direct future Expert Panels to make specific no-regrets recommendations for the State Water Board to implement to detect and control antibiotic resistant bacteria and antibiotic resistance genes in non-potable reuse;
- (9) Require any recycled water project proponents within a basin where a salt and nutrient management plan has not been accepted by the regional water board to conduct a site-specific antidegradation analysis;
- (10) Provide specific examples or guidance for the Regional Board to determine where salt and nutrient management plans are not a threat to water quality;
- (11) Require Regional Boards to assess salt and nutrient management plans and evaluate monitoring data concurrently every 5 years;
- (12) Continue to require Regional Board’s to incorporate salt and nutrient management plans into Basin Plans;
- (13) Continue to require reporting of water recycling data and direct staff to develop a publicly accessible dashboard of the reported influent, the amount of recycled water, and the amount of treated wastewater discharged; and
- (14) Continue to incorporate the clarification that all recycled water permittees comply with Water Code Section 1211.

1. THE STATE WATER BOARD SHOULD SET A STATEWIDE GOAL OF ELIMINATING TREATED OCEAN WASTEWATER DISCHARGES.

Most California communities use water once then dispose of it like waste, at tremendous environmental and economic cost. Today's water recycling technology allows us to treat and reuse those wasteful discharges, helping reduce energy consumption, increase water security, and meet California's constitutional obligations. The State Water Board should set a statewide policy goal that we strive to eliminate treated ocean wastewater discharges and instead reuse it and put it to a beneficial use as a water supply.

- a. Climate change and the California Constitution should drive California to eliminate the wasteful discharge of treated wastewater.*

California's wastewater has historically been treated solely as waste – used once, treated, and then disposed of through offshore dumping. As a result, approximately 12 billion gallons of treated water are wastefully discharged into the ocean or California estuaries each day. California's 'pump and dump' approach to water management is increasingly at odds with the state's hydrologic reality. As climate change creates hotter, drier conditions and reduces the storage capacity of the Sierra snowpack, the need to prevent water waste is more critical than ever. Our wastewater management is also increasingly at odds with the law. The California Constitution prohibits any waste and unreasonable use of a water resource. In this increasingly water-scarce state, ocean wastewater discharges arguably constitute a 'wasteful and unreasonable' use of water, illegal under the state Constitution.

California's current water infrastructure and supply is dominated by energy-intensive inter-basin transfers where, at great environmental and economic cost, surface waters from Northern California, Owens Valley, and the Colorado River are diverted and typically pumped long distances and over mountain ranges to meet water demands for agriculture and large metropolitan populations in arid and semiarid regions of California. Climate change forecasts create additional concerns regarding the region's water security as rising temperatures have already caused snowpack in the Sierras to melt earlier and at faster rates, leaving less water available for capture and transport in the late summer and fall months.

The combination of an unpredictable climate, a limited, scarce resource, and a growing public demand creates an undeniable need to conserve water to the fullest extent possible and put all water resources to reasonable and beneficial uses, as reflected in the requirements of the California Constitution and the California Water Code. However, despite these clear legal mandates, the considerable environmental and economic costs of maintaining the State's water infrastructure, and the looming threats posed by a changing climate, water resources are generally transported over great distances, utilized once, and then dumped into our rivers, creeks, and the Pacific Ocean.

California law reflects the scarcity and value of water resources. For nearly a century, a self-executing provision of the California Constitution has required that all water resources of the State be put to reasonable and beneficial use to the maximum extent possible and has prohibited *any* waste and unreasonable use of a water resource. (Cal. Const., article X, § 2.) Thus, the State Board and the nine Regional Boards must ensure uses are both beneficial and reasonable and prevent waste and unreasonable use when regulating all water resources in California. This is codified in Article X, section 2 of the Constitution which requires that uses be reasonable and beneficial while also prohibiting the waste and unreasonable use of all water resources of the State. Article X, section 2 reads in pertinent part as follows:

It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste and unreasonable use or unreasonable method of use of water be prevented, and that

the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.

Recycled water is defined as “water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource.”¹ The State Board’s Recycled Water Policy developed pursuant to California Water Code section 13140 also provides that the reuse of wastewater in California is meant to supplement and/or substitute for the use of surface or groundwater. Accordingly, the Recycled Water Policy highlights and applies the mandates already contained in Article X, section 2 of the California Constitution and Water Code section 100 that the use and management of wastewater, like all water in the State, must be reasonable and not wasteful.

Article X, section 2 and Water Code section 100 impose an affirmative, non-discretionary duty on the State Board to ensure the reasonable and beneficial use of water resources and to prevent the waste and unreasonable use of all water resources of the State.² California Water Code section 275 explicitly requires that the State Board take all necessary action in executive, legislative, and judicial forums to prevent unreasonable use of water. “Section 275 directs that the [State Board] and DWR take appropriate action to prevent waste and the unreasonable use of water.”³ The State Board also states in the Recycled Water Policy that the policy “fully implements state . . . water quality laws and regulations . . . and put the waters of the state to the fullest use of which they are capable.”⁴

b. The State Water Board should manage recycled water in an integrated manner and expressly require Regional Boards to consider the reasonable and beneficial use of reusing wastewater.

As detailed above, Article X, section 2 of the Constitution mandates that all water resources in California are used both for beneficial uses and reasonably. And, as also explained above, Water Code section 275 provides that the State Water Board take all appropriate executive, legislative, and judicial actions to prevent the waste and unreasonable use of water.

One purpose of the Recycled Water Policy is to “provide direction to the Regional Water Quality Control Boards (Regional Water Boards), proponents of recycled water projects, and the public regarding the appropriate criteria to be used by the State Water Board and the Regional Water Boards in issuing permits for recycled water projects.” Given this purpose and the requirement that recycled water be used both beneficially and reasonably, the update to the Recycled Water Policy provides the State Board an opportunity to execute its duties imposed by Article X, section 2 and provide that “water recycling requirements” permits must ensure that the permitted use is both reasonable and beneficial.

Once available, California’s water resources must be managed in an integrated way if California is to solve its water challenges—which are certain to become increasingly difficult given the State’s growing population and extended droughts. Without ensuring that recycled water is used reasonably and not wastefully the State Board risks substantial, and likely irreversible, commitments of water to unsustainable uses in the face of the state’s worsening water imbalance. Such unsustainable commitments of recycled water already exist, including irrigation of water intensive crops in over-allocated, over-drafted basins. Further, merely adding recycled water to existing supplies without integration and rationalization of uses via a reasonable use analysis will do nothing to restore overdrawn and impaired waters and will only further foster urban sprawl. Yet, the Recycled Water Policy is meant to combat California’s “unprecedented water crisis” by “mov[ing California] towards sustainable

¹ Cal. Wat. Code § 13050(n).

² *City of Barstow v. Mojave Water Agency* (2000) 23 Cal. 4th 1224, 1236; *Environmental Defense Fund*, 20 Cal.3d at 341; *Imperial Irrigation Dist.*, 186 Cal.App.3d at 1170–71; see also *In the Matter of the Alleged Waste and Unreasonable Use of Water by Imperial Irrigation Dist.*, (June 21, 1984) State Water Resource Control Board, Decision No. 1600 at 9.

³ *Central Delta Water Agency v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 245, 260, fn.9.

⁴ Recycled Water Policy, p. 2.

management of surface waters and groundwater....” Failing to require that all recycled water is used reasonably and not wastefully would completely undermine this purpose and the State Water Board’s laudable goals of encouraging the development and use of recycled water.

Therefore, the State Water Board should revise the Recycled Water Policy to expressly state that all recycled water in California must be used for beneficial uses and must be used reasonably and not wastefully, and that the reasonable beneficial requirement shall be incorporated into all permits governing recycled water.

1.5 d. It is the State Water Board’s intent to promote consistency in the permitting of recycled water projects in California while also preserving sufficient authority and flexibility for the regional water boards to address site-specific conditions. **All recycled water in California must be used for beneficial uses and must be used reasonably and not wastefully, and that the reasonable beneficial requirement shall be incorporated into all permits governing recycled water.**

c. Oppositions’ fears that a statewide goal to eliminate ocean wastewater discharges will become an enforceable mandate is unfounded.

CCKA does not support an enforceable statewide mandate that California eliminate all its ocean wastewater discharges. In 2015 Senator Hertzberg introduced Senate Bill 163, requiring 50 percent of wastewater effluent to be reused by 2026 and 100 percent reused by 2036. CCKA did not support this legislation. We believed the bill would force communities to pursue non-potable reuse and bind them to purple pipe infrastructure for wasteful uses such as golf courses or non-native landscaping. CCKA did, and still does, not want to see a statewide mandate to recycle all ocean wastewater discharges because it will force the construction of unnecessary purple-pipe projects.

There are several important differences between Senate Bill 163 and the State Water Board setting a statewide goal to eliminate ocean discharges and instead recycled that water and put it to a beneficial use. First, CCKA is not asking for an enforceable mandate. We are only requesting an ambitious goal, tied to a tangible outcome, that will encourage communities to pursue water recycling. Second, California has enacted Assembly Bill 574, which provides the necessary “bridge” for the water recycling community to achieve zero ocean wastewater discharges without forcing unnecessary purple pipe infrastructure. Lastly, CCKA is not proposing this goal be achieved by a date certain. We are only advocating for California to make a policy goal that we should be striving to eliminate the wasted discharge to the ocean of treated wastewater by recycling it and reusing it as a valued and much needed resource to our water supply portfolio.

Contrary to the oppositions’ arguments, a statewide goal to eliminate ocean wastewater discharges is appropriate and does not needlessly focus only on the coast. A goal to eliminate ocean wastewater discharges benefits the entire state and expanding the goal to eliminate discharges into inland waterways will have unintended consequences. Southern California and the Bay Area discharge the state’s majority of treated ocean wastewater, while concurrently importing most of the state’s water. Reusing treated ocean wastewater discharges and reusing it for local water supplies will help California reduce its statewide reliance on imported water and make Southern California and the Bay Area more resilient and self-sufficient. Reusing ocean wastewater discharges not only helps our urban coastal communities face an uncertain climate change future but helps inland communities whose water is currently being diverted.

Furthermore, including inland waterways into a goal to eliminate treated wastewater discharges would have dramatic unintended consequences. Many inland waterways depend on treated effluent. Requiring upstream treatment facilities to recycle all their wastewater would impact the legal rights of downstream water rights holders. CCKA is advocating for the elimination of ocean wastewater discharges because it is a waste to not recycle that treated resource. The same is not true for inland waterways.

CCKA does not want to set a statewide mandate to recycle all treated ocean wastewater discharges. We do not want to require the state to eliminate all ocean wastewater discharges by a date certain. But if we did, and unlike Senate Bill 163, California now has a bridge (AB 574) to recycle all its ocean wastewater discharges and not force unnecessary purple pipe projects. Recycling all ocean wastewater discharges helps the entire state as urban coastal communities become water self-sufficient and pressure is taken off inland communities whose water is currently being diverted. Requiring inland wastewater discharges be eliminated is a dangerous concept as it would impact downstream uses and water rights. A policy goal of eliminating ocean wastewater discharges prevents waste and helps California become more resilient to the impacts climate change will have on our water supplies.

- d. *The State Water Board should not only minimize treated ocean wastewater discharges – it should set a statewide goal of eliminating treated ocean wastewater discharges.*

It is not enough to only minimize treated ocean discharges – California should be striving to eliminate them while putting that treated water to a beneficial use as municipal water supply. California’s current water recycling goals and mandates of one million acre-feet per year (af/y) by 2020 and two million af/y by 2030 are arbitrary and based on volumes that may be either underwhelming or impossible to attain. California needs a water recycling goal that is ambitious, yet attainable, and tied to a tangible outcome worth achieving. Local agencies have already made commitments to this end. For example, the Orange County Sanitation District has set a goal of recycling 100 percent of their wastewater flows.⁵ Achieving zero ocean wastewater discharges would also serve to eliminate pollution to the ocean that exacerbate harmful algal blooms and ocean acidification hot spots.

Rather than reselect an arbitrary recycled water goal during the Revised Recycled Water Policy, the State Water Board should set a water recycling goal of eliminating ocean wastewater discharges. The current statewide mandate should not be removed unless it is replaced with an ambitious goal tied to an outcome worth achieving.

The State Water Board should make the following revisions to the Policy:

3.1. *Goals.* To encourage the increased use of recycled water in California, **and to prevent the waste and unreasonable use of treated water in accordance with Water Code section 275**, the State Water Board adopts the following goals:

3.1.2. **Eliminate** ~~Minimize~~ the direct discharge of treated municipal wastewater to enclosed bays, estuaries and coastal lagoons, and ocean waters, except where necessary to maintain beneficial uses. For the purpose of this goal, treated municipal wastewater does not include brine discharges from recycled water facilities or desalination facilities.

Minimizing ocean wastewater discharges is an inconsequential goal. Even if we did not recycle one additional gallon of water, ocean wastewater discharges would be minimized through increasing water efficiency measures and conservation. We need a goal that acknowledges ocean wastewater discharges is a waste, and one that encourages all ocean discharges to be treated and reused. CCKA’s proposed goal is a reasonable policy goal that California should be striving towards. It is not an enforceable mandate. It does not need to be achieved by a date certain. It provides for the continued discharge of brine. It accounts for the need to continue to meet water quality standards and protect beneficial uses. This goal is only a policy statement that treated wastewater is a valued resource that should not be wastefully discharged to the ocean, but instead, reused as part of a larger strategy for California to become regionally water self-sufficient and climate resilient.

⁵ Orange County Sanitation District Budget FYs 2016-17 and 2017-18. Section 1, page 3. Available at: <https://www.ocsd.com/Home/ShowDocument?id=18284>.

2. THE STATE WATER BOARD SHOULD REQUIRE A LEGALLY SUFFICIENT ANTIDegradation ANALYSIS FOR ALL RECYCLED WATER PROJECTS.

The State Water Board continues to allow for flawed antidegradation analyses in the Recycled Water Policy Amendment. Antidegradation law requires that, in high-quality waters, baseline water quality must be maintained unless it is demonstrated that any change in quality will (1) be consistent with the maximum benefit to the people of the state (“maximum benefit”); (2) not unreasonably affect present or probable future beneficial uses; and (3) not result in water quality less than that prescribed by state policies. Furthermore, any activity that produces or may produce waste, and that discharges into high-quality waters,⁶ must result in best practicable treatment control (“BPTC”) to ensure that (a) pollution or nuisance will not occur, and (b) the highest water quality consistent with maximum benefit will be maintained.

The Recycled Water Policy Amendment fails to meet the requirements of Antidegradation Policy by failing to (1) establish a water-quality baseline to determine authorized alterations in water quality and their impacts on beneficial uses, (2) conduct an adequate maximum-benefit analysis, and (3) establish BPTC to ensure that nuisance and pollution will not occur and that the highest water quality consistent with maximum benefit will be maintained. By merely stating that the Antidegradation Policy has been satisfied, the Water Board fails to make the required findings that would allow high quality waters to be degraded by recycled water projects.

The Recycled Water Policy Amendment fails to meet the requirements of the Antidegradation Policy because there is no establishment of a water quality baseline to determine authorized alterations in water quality and their impacts on beneficial uses. The State Water Board acknowledges in Amendment Section 7.1.1. that “[i]rrigation and other non-potable uses of with recycled water in accordance with this Policy is to the benefit of the people of the State of California. Nonetheless, the State Water Board finds that the use of water for irrigation may, regardless of its source, collectively affect groundwater quality over time.” When there “is a determination that the receiving water is high quality and that an activity will discharge waste into the receiving water” degradation is assumed⁷ and an Antidegradation Policy analysis is required. Therefore to allow degradation, the Recycled Water Policy Amendment – or the plans and permits the Amendment relies upon – must “set forth findings that bridge the analytical gap between the raw evidence and ultimate decision.”⁸ The State Board’s findings must provide “the analytic route [it] traveled from evidence to action” to satisfy this requirement, so as to allow the reviewing court to satisfy its duty to “compare the evidence and ultimate decision to ‘the findings.’”⁹ Mere recitation of legal requirements – as done here - is not sufficient.

The Recycled Water Policy Amendment fails to meet the requirements of the Antidegradation Policy because it allows for an inadequate maximum-benefit analysis. An adequate maximum-benefit analysis compares the economic, health, and environmental costs and benefits of the authorized degradation. The State Water Board laid out how a proper maximum-benefit analysis should be conducted in State Water Board Order 86-17.¹⁰ A maximum-benefit determination “is made on a case-by-case basis and is based on considerations of reasonableness under the circumstances at the site” and must consider the following factors:¹¹ “past, present, and probable beneficial uses of the water” as specified in the Water Quality Control Plans; “economic and social

⁶ The court in *AGUA* found that an actual showing of degradation is not required; instead the policy applies when there “is a determination that the receiving water is high quality water and that an activity will discharge waste into the receiving water.” *Asociacion De Gente Unida Por El Agua (Agua) v Central Valley Regional Water Board*, (2012) 210 Cal.App.4th 1255, 1272. The policy presumes from these two facts that the quality of the receiving water will be degraded by the discharge of waste. *Id.*

⁷ *Agua*, at 1272. Degradation is assumed when waste is being discharged into high quality waters.

⁸ See *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d, 506, 514-516.

⁹ *Id.* at 515.

¹⁰ State Water Resources Control Board Order No. 86-17, at 22, n. 10; *AGUA*, at 1279.

¹¹ *AGUA*. at 1279.

costs, tangible and intangible, of the proposed discharge compared to the benefits,¹² environmental aspects of the proposed discharge; and the implementation of feasible alternative treatment or control methods.”¹³ The Recycled Water Policy Amendment did not conduct this required analysis and it allows all recycled water projects that meet the and therefore does not comply with the law and is an abuse of discretion.

The Amendment fails to meet the requirements of the Antidegradation Policy because it does not require Best Practicable Treatment or Control. The Amendment does not require Best Practicable Treatment or Control (BPTC). It is impossible to determine whether authorized discharge activities will ensure maintenance of the highest quality water consistent with maximum benefit, since (1) the amount of authorized degradation is unknown, (2) the maximum-benefit analysis is insufficient, and (3) there are no enforceable standards.

The State Water Board fails to adhere to the Antidegradation Policy by allowing non-potable recycled water projects to merely be consistent with a Salt and Nutrient Management Plan or the statewide General Reclamation Orders. Antidegradation analyses should be done on a case by case basis to adhere to the Antidegradation Policy. Allowing a specific water recycling project to dodge an antidegradation analysis simply because it complies with a Salt and Nutrient Management Plan or the statewide General Reclamation Orders is illegal. Even assuming it was legally sufficient to not conduct a project-specific antidegradation analysis by complying with a Plan or General Order, the Amendment still fails because neither the Salt and Nutrient Management Plans nor the General Reclamation Orders have conducted their own proper antidegradation analysis. The State Water Board cannot allow recycled water projects to comply with the Antidegradation Policy by following plans and orders that themselves have legally flawed antidegradation analyses.

The Recycled Water Policy Amendment follows the same circular logic disallowed in the *Agua* and *Coastkeeper I* decisions. In *Agua*, the court held that “the order’s findings that it was consistent with the maximum benefit to the people of the state⁴, would not unreasonably affect beneficial uses⁵, and would not violate water quality objectives⁶, were all based on the assertion that the Order would not further degrade groundwater because the order said so, a finding the court had already determined was “circular” not supported by the evidence in the record.”¹⁴ The court went on to state that since there “will be some discharge of waste to groundwater, the Regional Board’s decree that the Order does not permit further degradation of groundwater is meaningless without an effective method to determine whether the discharge has resulted in a degradation of groundwater quality.” In *Coastkeeper I*, the judge had the same concern because it was “unable to decide whether the Waiver violates the Antidegradation Policy because the Board has failed to apply the Policy in the manner directed by the Court in *AGUA*, including any consideration of whether the waters are “high quality” waters.”

The Recycled Water Policy Amendment continues the Water Boards’ circular logic that compliance with a plan or order is sufficient to comply with the Antidegradation Policy. The Recycled Water Policy Amendment should require that each recycled water project conduct a site-specific analysis to determine whether the baseline water quality is being maintained, and if not, the permittee must demonstrate that any change in quality will (1) be consistent with the maximum benefit to the people of the state (“maximum benefit”); (2) not unreasonably affect

¹² With reference to economic costs, costs to both the discharger and the affected public must be considered. *Id.*

¹³ *Id.*

⁴The order finds that the highest water quality consistent with the maximum benefit to the people of the state will be maintained and in support thereof states, in relevant part, that the order prohibits any further degradation of groundwater. *Agua* at 1279 - 1280.

⁵ The order’s “information sheet states that beneficial uses are protected by the specification that discharge of waste at existing milk dairies shall... not degrade groundwater.” *Agua* at 1280.

⁶ The order’s information sheet states “The discharge of waste from dairies must not cause surface water or groundwater to exceed the applicable water quality objectives for those constituents and that is consistent with the state antidegradation policy because ... it contains groundwater limitations that prohibit further degradation or violation of water quality objectives. *Agua* at 1281.

¹⁴ *Agua* at 1280, 1281.

present or probable future beneficial uses; and (3) not result in water quality less than that prescribed by state policies. Furthermore, any activity that produces or may produce waste, and that discharges into high-quality waters,¹⁵ must result in BPTC.

The antidegradation provisions in the Amendment ignore case law and are inconsistent with the Antidegradation Policy. All provisions allowing a recycled water project to evade a site-specific antidegradation analysis so long as they are consistent with a Salt and Nutrient Management Plan or a General Reclamation Order should be removed from the Amendment. The Amendment should require that each recycled water project should conduct a site-specific antidegradation analysis. However, if the State Water Board is unwilling to require site-specific antidegradation analyses, then in the alternative, the State Water Board should revise the Amendment as follows to ensure Salt and Nutrient Management Plans and/or General Reclamation Orders have legally sufficient antidegradation analyses in place before recycled water projects can rely upon them to comply with the Antidegradation Policy.

6.2.4.5. An antidegradation analysis demonstrating that the existing projects, reasonably foreseeable future projects, and other sources of loading to the basin included within the plan will, cumulatively collectively, satisfy the requirements of State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (Antidegradation Policy). **To satisfy State Water Board Resolution No. 68-16, a plan must determine whether existing projects, reasonably foreseeable future projects and other sources will degrade high quality water. If a project will degrade high quality water, the discharge may be allowed if any change in water quality (1) will be consistent with maximum benefit to the people of the State, (2) will not unreasonably affect present and anticipated beneficial use of such water, and (3) will not result in water quality less than that prescribed in state policies. Activities that result in discharges to such high quality waters are required to use the best practicable treatment or control of the discharge necessary to avoid a pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State.**

7.1.2. For non-potable recycled water project proponents within a basin for which the regional water board has adopted a basin plan amendment based on an accepted salt and nutrient management plan pursuant to 6.2.3.3, **and meeting the antidegradation analysis detailed in 6.2.4.5**, compliance with the Antidegradation Policy may consist of an analysis demonstrating that the project is consistent with the adopted basin plan amendment. For non-potable recycled water project proponents within a basin with an accepted salt and nutrient management plan **that comports with the antidegradation analysis detailed in 6.2.4.5**, but without an associated basin plan amendment, the antidegradation analysis may be based, in part, on the technical findings of the accepted salt and nutrient management plan as described in 6.2.2. For non-potable recycled water project proponents within a basin where a salt and nutrient management plan has not been accepted by the regional water board, compliance with the Antidegradation Policy will **require a site-specific antidegradation analysis that determines whether the discharge will degrade high quality water. If a project will degrade high quality water, the discharge may be allowed if any change in water quality (1) will be consistent with maximum benefit to the people of the State, (2) will not unreasonably affect present and anticipated beneficial use of such water, and (3) will not result in water quality less than that prescribed in state policies. Activities that result in discharges to such high quality waters are required to use the best practicable treatment or control of the discharge necessary to avoid a pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State.** ~~depend on the permitting mechanism selected by the regional~~

¹⁵ The court in *AGUA* found that an actual showing of degradation is not required; instead the policy applies when there “is a determination that the receiving water is high quality water and that an activity will discharge waste into the receiving water.” *Asociacion De Gente Unida Por El Agua (Agua) v Central Valley Regional Water Board*, (2012) 210 Cal.App.4th 1255, 1272. The policy presumes from these two facts that the quality of the receiving water will be degraded by the discharge of waste. *Id.*

~~water board as described in 7.2. and 7.3 below. If the proposed project is in a basin identified pursuant to 6 as needing a salt and nutrient management plan and if directed by a regional water board pursuant to Water Code section 13267, the recycled water project proponent may be required to develop or participate in developing a salt and nutrient management plan.~~

~~7.2.2. Recycled water project proponents seeking to enroll under statewide water reclamation requirements can demonstrate compliance with the Antidegradation Policy by demonstrating that the project complies with the conditions of the order.~~

8.2.2. For groundwater recharge projects within a basin for which the regional water board has adopted a basin plan amendment based on an accepted salt and nutrient management plan pursuant to 6.2.3.3, **and meeting the requirements detailed in 6.2.4.5.**, compliance with the Antidegradation Policy may consist of conducting an analysis demonstrating that the project is consistent with the adopted basin plan amendment.

8.2.3. For groundwater recharge projects within a basin with a salt and nutrient management plan accepted by the regional water board pursuant to 6.2.3.2 (i.e., without an associated basin plan amendment), **and meeting the requirements detailed in 6.2.4.5.**, the antidegradation analysis may be based, in part, on the technical findings of the accepted salt and nutrient management plan as described in 6.2.2.

8.2.4. ~~For a groundwater recharge project within a basin where a salt and nutrient management plan has not been accepted by the regional water board, compliance with the Antidegradation Policy will require a site-specific antidegradation analysis that determines whether the discharge will degrade high quality water. If a project will degrade high quality water, the discharge may be allowed if any change in water quality (1) will be consistent with maximum benefit to the people of the State, (2) will not unreasonably affect present and anticipated beneficial use of such water, and (3) will not result in water quality less than that prescribed in state policies. Activities that result in discharges to such high quality waters are required to use the best practicable treatment or control of the discharge necessary to avoid a pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State. If a groundwater recharge project proponent is actively participating in the development of a salt and nutrient management plan for the basin or subbasin to the satisfaction of the applicable regional water board, then compliance with the Antidegradation Policy may be demonstrated as follows:~~

3. THE STATE WATER BOARD SHOULD PROTECT THE PUBLIC AND AQUATIC HEALTH FROM CONSTITUENTS OF EMERGING CONCERN.

- a. *The State Water Board should continue to support the use of bioassays as a method of detecting new constituents of emerging concern to be monitored.*

There are over 30 million chemicals registered on the CAS Registry, with over 4,000 chemicals added daily. Over those millions of chemicals, the Expert Panel only considered 489 constituents of emerging concern (CECs), and decided that only 3 CECs should be used for health-based monitoring. Given that thousands of chemicals are potentially present in recycled water and that information about those chemicals is rapidly evolving, the Panel recommended that the State Water Board continue to rely on a transparent, science-based framework to guide prioritization of which CECs should be included in recycled water monitoring programs both now and in the future as additional data become available.

As originally expressed during the 2010 Expert Panel, CCKA remains concerned that the CEC Monitoring Program is not sufficient to identify and add new CECs. We agree that the Panel's risk-based framework is effective in identifying CECs for which pertinent data are available. But more importantly, we agree with the Expert Panel that "the framework cannot capture all possible new compounds that may be entering the market, nor does it adequately address their transformation products." To help identify such compounds that may occur in

recycled water and their potential, if any, to affect human health, we strongly support the Panel’s belief “that bioanalytical screening methods are a critically important tool.” The State Water Board should continue to support the Panel’s recommendation “that the Estrogen Receptor alpha (ER- α) and the Aryl hydrocarbon Receptor (AhR) bioassays be used to respectively assess estrogenic and dioxin-like biological activities in recycled water.” These assays are now sufficiently standardized and robust for screening level data collection and assessment. These two in vitro bioassays were selected because each have clear adverse outcome pathways that allow specific molecular responses to be adequately standardized for screening recycled water quality at potable reuse projects. Additionally, we strongly support the Panel’s recommendation that the “investment in research and training is needed to provide an expanded, robust “bioscreening toolbox”, and to increase capacity for bioanalytical measurement.”

The State Water Board should maintain the incorporation of the bioanalytical screening methods into its CEC Monitoring Program and invest in research to expand a bioscreening toolbox.

b. The State Water Board should reconvene the CEC Expert Panel every three years.

Given the quickly evolving nature of CECs, the State Water Board should require the Expert Panel be reconvened every three years. The Panel recommends that the State Water Board reconvene an independent Panel to review proposed changes to CEC monitoring recommendations every three years. Due to the uncertainty that is inherently associated with the universe of chemicals that might occur in recycled water now and in the future, the need to establish a formal CEC monitoring and assessment program for recycled water that is responsive to rapidly changing CEC issues is critical.

A five-year Expert Panel reconvening is unacceptable. Convening a Panel every five years could result in errors and missing data. Applying the risk-based framework recommended by the 2010 Panel requires structure and consistent protocols yet no formal update of the selected CECs occurred until 2018. Reliance on health and performance-based indicators provides assurance of proper operation but is not suitable to account for new CECs. A three-year Expert Panel cycle will lead to more up-to-date on and off ramps. We request the State Water Board reconvene the Expert Panel every three years.

A more flexible and responsive program should be developed to update CEC monitoring recommendations in response to rapidly emerging science, technology advances and monitoring (screening) data collected. In this context, the State Water Board should take a more active role in procuring, managing and accessing CEC monitoring data and associated toxicological thresholds. The State Water Board needs a more responsive program to adjust to new information. The State Water Board should streamline implementation of Panel recommendations and make data widely available in easy to use format. We support the Panel recommends that the State Water Board consider taking several procedural steps to clarify roles and responsibilities for the State and Regional Water Boards (as described in Section 2.3) for permitting of potable water reuse projects, to improve the management of potable water facility monitoring data (i.e., CEC, bioanalytical, and high-frequency operation data), and the reporting of potable water operations to the public.

The State Water Board should incorporate the Expert Panel’s procedural recommendations on creating a flexible and responsive CEC Monitoring Program: developing a data management system for potable water facility monitoring data; using high-frequency operational monitoring data; developing consistent permittee electronic reporting requirements; and developing a protocol for providing the public an annual report summarizing performance of potable reuse projects.

10.2.1. (1) The State Water Board, in consultation with CDPH, shall convened a “blue-ribbon” Science Advisory Panel every three five years to guide future actions relating to CECs. To streamline the Panel’s analysis, the State Water Board shall develop a data management system for potable water facility monitoring data; use high-frequency operational monitoring data; develop consistent permittee electronic reporting

requirements; and develop a protocol for providing the public an annual report summarizing performance of potable reuse projects.

- c. *The State Water Board should prioritize resources towards establishing a monitoring protocol that is protective of aquatic health.*

The Expert Panel should be considering impacts to aquatic health when developing an appropriate CEC Monitoring Program for California. Just like in 2010, the State Water Board has once again failed to instruct the Expert Panel to assess CEC impacts to aquatic health. The Panel was “instructed to evaluate potential risks for all routes of exposure, except potential exposures associated with consumption of crops irrigated with recycled water, but to limit their deliberations to impacts on human (*and not ecological*) health.” (Emphasis added.)

The discharge of CECs to California’s receiving waters occurs daily due to recycled water. As recycled water becomes an increasingly important part of California’s water supply portfolio, the State faces the challenge of monitoring and regulating the discharge of CECs into surface and groundwater. Many streams in Southern California are effluent-dominated streams with 80-95 percent of dry weather flows coming from recycled water discharges, and many Northern California streams receiving recycled water effluent interact regularly and closely with groundwater. As such, the importance of monitoring for CECs is critical to identify risks posed to public health and aquatic life.

The Recycled Water Policy established the Expert Panel for “describing the current state of scientific knowledge regarding the risks of emerging constituents to public health and the *environment*.” (Emphasis added.) The Policy further called on the Panel’s Report to “recommend actions that the State of California should take to improve our understanding of emerging constituents” because “[r]egulating most CECs will require . . . more specific determinations as to how and at what level CECs impact public health or *our environment*.” This mandate was directed at an expert Panel because, as the Report notes, “[t]here needs to be additional research . . . to determine *potential environmental* and public health impacts.” (Emphasis added.) This research is further needed to implement the Policy’s direction to agencies to “minimize the likelihood of CECs impacting human health and *the environment* by means of source control and/or pollution prevention programs.” (Emphasis added.)

The Panel did not expressly acknowledge the fact that discharge of recycled water to receiving waters occurs daily, that many streams in southern California are effluent-dominated streams with 80-95 percent of dry weather flows coming from recycled water discharges, or that many northern California streams that may receive recycled water effluent interact regularly and closely with groundwater. As such, the importance of including monitoring recommendations for those CECs that potentially pose a risk to aquatic life and ecosystems is critical. By failing to recommend a robust monitoring program even in the short-term considering this dearth of data, the Expert Panel only delayed the increased, safe use of recycled water that California needs to ensure a sustainable water future.

We disagree with the Expert Panel’s focus on monitoring solely for assessing human health impacts. This approach is contrary to the Recycled Water Policy’s clear direction to include ecological assessments, as well as the Policy’s goal of using recycled water more frequently than under the current environmental conditions examined by the Panel. The State Water Board should direct future Expert Panels to develop monitoring protocols to detect CECs that impact aquatic health.

The State Water Board should prioritize resources towards establishing a monitoring protocol that is protective of aquatic health. In April 2012, a scientific advisory panel named the “Ecosystems Panel” provided recommendations for the monitoring of CECs in aquatic ecosystems. To-date however, we are unaware of these recommendations being used in any regulatory context. We are also aware that the Ocean Protection Council has resources to develop a monitoring protocol to detect CECs in marine waters. The State Water Board can complement the OPC’s efforts by prioritizing resources that would develop a monitoring protocol to detect CECs

in inland surface waters. The State Water Board should provide the resources necessary to complement the OPC's efforts to develop a marine and inland surface waters CEC monitoring protocol that is protective of aquatic health.

- d. *The State Water Board should direct future CEC Expert Panels to investigate the risk and potential health exposer of cumulative CECs at low levels.*

CECs demonstrate low acute toxicity but cause significant reproductive effects at very low levels of exposure. In addition, the effects of exposure of aquatic organisms to CECs during the early stages of life may not be observed until adulthood. These chemicals may also have very specific modes of action that affect only certain types of aquatic animals (e.g., vertebrates such as fish). Therefore, the EPA has suggested that traditional chronic toxicity test endpoints specified in drinking water guidelines may not be sufficiently comprehensive, and Guidelines requirements for taxonomic coverage in toxicity testing may not be appropriate to derive aquatic life criteria for these chemicals.

We note that specific issues such as the potential for joint interactions affecting toxicity exist for many CECs that may occur in mixtures in the environment and which may also interact with environmental variables such as temperature. Such possible interactions should be considered. As more information is developed to account for the interactive effects of CECs, it is possible that water quality criteria may be revised up or down for individual CECs based upon data on joint interactions; use of such data would produce more risk-based criteria.

Mixtures of CECs with comparable modes of action may result in higher effective concentrations than would be expected based on the concentrations of any single compound. Therefore, research is needed to determine how aquatic life criteria for CECs can consider the fact that aquatic organisms are exposed to mixtures of chemicals with similar modes of action.

The State Water Board should direct future panels to investigate the risk and potential health exposure to cumulative CECs at low levels.

- e. *The State Water Board should direct future Expert Panels to provide no-regrets recommendations for addressing antibiotic resistant bacteria in non-potable reuse.*

Future Expert CEC Panels should take antibiotic resistance more seriously. The 2017 CEC Panel decided that antibiotic resistant bacteria (ARB) is “still a major challenge and potentially an issue for any wastewater discharge into the environment” and as a result “[f]ocused investigations are needed to better understand the occurrence, fate and risks associated with ARB and ARGs in recycled water applications across California.” However, the Expert Panel only provides the State Water Board a weak recommendation to “encourage the collection of data in reclaimed water and sites within California while keeping ARB out of scientific advances related to methods and risk assessment.” Given the serious implications of ARB, future Expert Panel needs to make stronger and more specific recommendations for the State Water Board to take a no-regrets strategy now to detect and control ARB.

Antibiotic resistance genes can be associated with mobile genetic elements, which in turn allow a promiscuous transfer of resistance traits from one bacterium to another.¹⁶ Together with the pathogens that are present in the reclaimed water, antibiotic resistant bacteria can potentially exchange mobile genetic elements to create the "perfect microbial storm".¹⁷ Given the significance of this issue, a deeper understanding of the occurrence of antibiotics in reclaimed water, and their potential influence on the selection of resistant microorganisms would be essential.¹⁸

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

Effluents from wastewater treatment plants have been recognized as a significant environmental reservoir of antibiotics and antibiotic resistance genes (ARGs). Yet the Expert Panel stated that “information to date is not complete and seems to indicate that the causes for antibiotic resistance are still not well known and the current studies do not show that antibiotic resistance transmission is a consequence of water reuse practices considered in this report.” We disagree. In a 2013 study¹⁹ a broader range of ARGs were detected after the reclaimed water passed through the distribution systems, highlighting the importance of considering bacterial re-growth and the overall water quality at the point of use (POU). The study screened for pathogens with qPCR indicated presence of *Lmip* and *gadAB* genes, but not *ecfx* or *gyrB*. In the lab study, chlorination was observed to reduce 16S rRNA and *sul2* gene copies in the wastewater effluent, while dechlorination had no apparent effect. ARGs levels did not change with time in soil slurries incubated after a single irrigation event with any of the effluents. However, when irrigated repeatedly with secondary wastewater effluent (not chlorinated or dechlorinated), elevated levels of *sul1* and *sul2* were observed. This study suggests that reclaimed water may be an important reservoir of ARGs, especially at the POU, and that attention should be directed toward the fate of ARGs in irrigation water and the implications for human health.

A 2015 study²⁰ aimed to assess the removal efficiency of microbial contaminants in a local wastewater treatment plant over the duration of one year, and to assess the microbial risk associated with reusing treated wastewater in agricultural irrigation. The treatment process achieved 3.5 logs removal of heterotrophic bacteria and up to 3.5 logs removal of fecal coliforms. 16S rRNA gene-based high-throughput sequencing showed that several genera associated with opportunistic pathogens (e.g. *Acinetobacter*, *Aeromonas*, *Arcobacter*, *Legionella*, *Mycobacterium*, *Neisseria*, *Pseudomonas* and *Streptococcus*) were detected at relative abundance ranging from 0.014 to 21 % of the total microbial community in the influent. Among them, *Pseudomonas* spp. had the highest approximated cell number in the influent but decreased to less than 30 cells/100 mL in both types of effluent. Besides the presence of antibiotic-resistant bacterial isolates, tetracycline resistance genes *tetO*, *tetQ*, *tetW*, *tetH*, *tetZ* were also present at an average $2.5 \times 10(2)$, $1.6 \times 10(2)$, $4.4 \times 10(2)$, $1.6 \times 10(1)$ and $5.5 \times 10(3)$ copies per mL of chlorinated effluent. The study highlighted that potential risks associated with the reuse of treated wastewater arise not only from conventional fecal indicators or known pathogens, but also from antibiotic-resistant bacteria and genes.

The use of reclaimed wastewater (RWW) for the irrigation of crops may result in the continuous exposure of the agricultural environment to antibiotics, ARB and antibiotic resistance genes ARGs. In recent years, certain evidence indicate that antibiotics and resistance genes may become disseminated in agricultural soils as a result of the amendment with manure and biosolids and irrigation with RWW.²¹ Antibiotic residues and other contaminants may undergo sorption/desorption and transformation processes (both biotic and abiotic), and have the potential to affect the soil microbiota.²² Antibiotics found in the soil pore water (bioavailable fraction) as a result of RWW irrigation may be taken up by crop plants, bioaccumulate within plant tissues and subsequently enter the food webs; potentially resulting in detrimental public health implications.²³ It can be also hypothesized that ARGs can spread among soil and plant-associated bacteria, a fact that may have serious human health implications.²⁴

¹⁹ Fahrenfeld N. et al., *Reclaimed Water as a Reservoir of Antibiotic Resistance Genes* distribution system and irrigation implications; *Front Microbiol.* 2013 May 28;4:130.

²⁰ Al-Jassim N. et al., Removal of bacterial contaminants and antibiotic resistance genes by conventional wastewater treatment processes in Saudi Arabia: Is the treated wastewater safe to reuse for agricultural irrigation? *Water Res.* 2015 Apr 15;73:277-90.

²¹ Christou A. et al., The potential implications of reclaimed wastewater reuse for irrigation on the agricultural environment: The knowns and unknowns of the fate of antibiotics and antibiotic resistant bacteria and resistance genes - A review; *Water Res.* 2017 Oct 15;123:448-467.

²² *Id.*

²³ *Id.*

²⁴ *Id.*

The overuse of antibiotics in livestock farms is general, leading to a wide distribution of ARGs in aquatic environment adjacent to livestock farms. In a 2015 study²⁵ wastewater and surface water samples were collected from 12 livestock farms (four pig farms, four cattle farms, and four chicken farms) in Jiangsu Province of China. The prevalence, abundance, and distribution of 22 ARGs were investigated, which were categorized into six groups, including nine tetracyclin resistance genes, three sulfonamides resistance genes, three quinolone resistance genes, two macrolide resistance genes, three aminoglycoside resistance genes, and two multidrug resistance genes, employing quantitative real-time PCR (qPCR).²⁶ The results suggested that all of the 22 ARGs were detected in samples.²⁷ *sul1*, *sul2*, and *tetM* were the most abundant with the average concentration of $3.84 \times 10(1)$ copies/16S recombinant RNA (rRNA) gene copies, $1.62 \times 10(1)$ copies/16S rRNA gene copies, $2.33 \times 10(1)$ copies/16S rRNA gene copies, respectively.²⁸ Principle component analysis revealed that the comprehensive pollution of ARGs in northern Jiangsu was more serious. ARGs in wastewater were more abundant when compared to that in surface water.²⁹ A preliminary study regarding the fate of ARGs after an aerobiotic process showed that *tetA*, *tetC*, *sul1*, *sul2*, *oqxB*, and *qnrS* were significantly increased.³⁰ And, among the tetracycline resistance genes, the efflux pump genes were enriched while the ribosomal protection protein encoding genes were decreased in the aerobiotic process.³¹ The prevalence of ARGs in surface water is of concern; and more surveillance is required to determine the pollution level and pattern of ARGs.

ARB is also concerned in public places that are irrigated with non-potable reuse. Irrigation of urban parks with treated wastewater significantly increased the abundance and diversity of various antibiotic resistance genes. In a 2016 Australian study³², a total of 40 unique ARGs were detected across all 12 park soils, with genes conferring resistance to β -lactam being the most prevalent ARG type. The total numbers and the fold changes of the detected ARGs were significantly increased by reclaimed water and marked shifts in ARG patterns were also observed in urban parks with reclaimed water compared to those without reclaimed water. The changes in ARG patterns were paralleled by a significant effect of reclaimed water on the bacterial community structure and a co-occurrence pattern of the detected ARG types. There were significant and positive correlations between the fold changes of the integrase *intI1* gene and two β -lactam resistance genes (KPC and IMP-2 groups), but no significant impacts of reclaimed water on the abundances of *intI1* and the transposase *tnpA* gene were found, indicating that reclaimed water did not improve the potential for horizontal gene transfer of soil ARGs. Taken together, the study's findings suggested that irrigation of urban parks with reclaimed water could influence the abundance, diversity, and compositions of a wide variety of soil ARGs of clinical relevance.

The abundance of ARBs in non-potable reuse is a concern for public and aquatic health. The studies cited above suggests that ARBs in non-potable reuse is a concern and needs to be addressed by the State Water Board. The State Water Board should direct future Expert Panels to make specific no-regrets recommendations for the State Water Board to implement to detect and control ARBs and ARGs in non-potable reuse.

²⁵ Chen B. et al., Prevalence of antibiotic resistance genes of wastewater and surface water in livestock farms of Jiangsu Province, China; *Environ Sci Pollut Res Int.* 2015 Sep;22(18):13950-9.

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² Han XM. et al., Impacts of reclaimed water irrigation on soil antibiotic resistome in urban parks of Victoria, Australia; *Environ Pollut.* 2016 Apr;211:48-57.

4. THE STATE WATER BOARD SHOULD NOT EXCUSE THOSE THAT HAVE NOT COMPLETED SALT AND NUTRIENT MANAGEMENT PLANS WITHIN THE SEVEN-YEAR COMPLIANCE DEADLINE.

The State Water Board should continue to require all groundwater basins to develop salt and nutrient management plans. The Recycled Water Policy states that it “is the intent of this Policy for every groundwater basin/sub-basin in California to have a consistent salt/nutrient management plan.” However, the State Water Board suggests that the “proposed Recycled Water Policy amendment may require Regional Water Boards to prioritize which groundwater basins or sub-basins need salt and nutrient management plans...” This new language implies that the State Water Board intends to backslide on its requirement to require all basins to develop a salt and nutrient management plan.

The State Water Board should not excuse those that ignored the State Water Board’s mandate. Many groundwater basins in the state contain salts and nutrients that exceed or threaten to exceed water quality objectives established in the applicable Basin Plans, and not all Basin Plans include adequate implementation procedures for achieving or ensuring compliance with the water quality objectives for salt and nutrients. All plans were due no later than February 3, 2016. The Recycled Water Policy states that salt and nutrient management plans shall be completed and proposed to the Regional Board within five years from the date of the Recycled Water Policy (2/3/14) and *in no case* the period for the completion of a plan *shall exceed seven years* (2/3/16). To now exonerate those that are clearly not in compliance is bad public policy and devalues the State Water Board’s credibility towards holding the regulated community accountable for statewide directives.

Local agencies have now had nine years to complete salt and nutrient management plans. It is inappropriate to forgive those that are now over two years passed the absolute last deadline. The State Water Board should not excuse those that have not completed salt and nutrient management plans within the seven-year compliance deadline. Instead, the State Water Board should force plans to be completed using a “stick” approach by requiring any recycled water project proponents within a basin where a salt and nutrient management plan has not been accepted by the regional water board to conduct a site-specific antidegradation analysis [See Above Pg. 9-10, Revised Sections 7.1.2.; 7.2.2.; 8.2.2.; 8.2.3.; and 8.2.4.].

During the June 19th State Water Board workshop on the Recycled Water Policy Amendment, staff stated that Regional Board discretion to not develop salt and nutrient management plans would only occur in special circumstances. The State Water Board cited an example of a basin that has no recycled water projects or areas where salt and nutrient loading is not a concern. The State Water Board should detail its intent to limit the exemption of developing salt and nutrient management plans and provide specific examples or guidance for the Regional Board to determine where salt and nutrient management plans are not a threat to water quality. Otherwise, Regional Boards will default to not developing them as they are resource intensive.

The State Water Board should be consistent when requiring Regional Boards to assess and review data. The Amendment requires Regional Boards to reassess whether a salt and nutrient management plan is necessary every 10 years. Additionally, Section 6.2.6. requires the Regional Boards to assess and review monitoring data every 5 years but no more than every 10 years. This discretion between 5 to 10 years is unwarranted and will default to monitoring data being assessed every 10 years. Furthermore, the 10 years to assess whether salt and nutrient management plans is irresponsible, as we have seen in the last decade the speed at which recycled water is developing in California. To ensure protection of our groundwater basins and to facilitate proper data management, both the evaluation for salt and nutrient management plans and assessing monitoring data should occur at the same time. The State Water Board should require Regional Boards to assess salt and nutrient management plans and evaluate monitoring data concurrently every 5 years.

6.1.3. Each regional water board shall update this evaluation at least every 5 10 years to consider any changes in these factors that have occurred that would change the findings from the initial evaluation.

6.2.6. Data assessment. The regional water boards, in consultation with stakeholders, shall assess and review monitoring data generated from these plans ~~approximately~~ every 5 years ~~but no more than every 10 years~~.

The State Water Board should require Regional Boards to incorporate salt and nutrient management plans into Basin Plans. The Recycled Water Policy Amendment removes the requirement to incorporate salt and nutrient management plans into basin plans, and instead, leaves it up to the Regional Board's discretion. For the salt and nutrient management plans to be binding and enforceable on discharges, and to ensure an adequate antidegradation analysis, the State Water Board should continue to require Regional Board's to incorporate salt and nutrient management plans into Basin Plans.

~~6.2.1.5. Within one year of the receipt of a proposed salt and nutrient management plan, the Regional Water Boards shall consider for adoption revised implementation plans, consistent with Water Code section 13242, for those groundwater basins within their regions where water quality objectives for salts or nutrients are being, or are threatening to be, exceeded. The implementation plans shall be based on the salt and nutrient plans required by this Policy. The regional water board may use its authority pursuant to Water Code section 13242 to adopt plans and programs of implementation for the protection of beneficial uses in basins whether or not a salt and nutrient management plan has been accepted by the regional water board pursuant to 6.2.3.2 or a basin plan amendment has been adopted by the regional water board pursuant to 6.2.3.3.~~

~~6.2.2. Implementation of salt and nutrient management plans may require a regional water board to amend its basin plan. The regional water board shall consider for adoption a basin plan amendment when implementation of a salt and nutrient management plan involves adoption and/or modification of water quality objectives, beneficial uses, or programs of implementation consistent with Water Code sections 13240, 13241, and 13242. In other cases where a regional water board determines a basin plan amendment is not required, the accepted salt and nutrient management plan serves as a technical document to support future regional water board decisions.~~

5. THE STATE WATER BOARD SHOULD CONTINUE TO REQUIRE REPORTING OF RECYCLED WATER.

The State Water Board should continue to require reporting of recycled water and the regional potential to recycle water. Currently, there is no streamlined statewide reporting program and data management system for tracking recycled water production, use or potential production. We applaud the State Water Board for proposing that the Recycled Water Policy include language requiring monthly reporting of influent, treated water produced, and treated water disposed.

The State Water Board should direct staff to develop a publicly accessible dashboard of the reported influent, the amount of recycled water, and the amount of treated wastewater discharged. The public should know how much treated wastewater is being wasted through ocean disposal. By creating a publicly accessible dashboard, we can measure regional progress towards maximizing recycled water in their community. The dashboard should provide the provide both regional and individually reported numbers for how much influent is reaching wastewater facilities, how much of that influent is being recycled, and how much of that treated wastewater is still being wastefully discharged to the ocean.

6. THE STATE WATER BOARD SHOULD CONTINUE TO CLARIFY THE REQUIREMENT OF OBTAINING A WATERWATER CHANGE PETITION IN COMPLIANCE WITH WATER CODE SECTION 1211.

The State Water Board should continue to add clarification to the Amendment regarding the requirements for permittees to comply with Water Code Section 1211. Recycled water projects that propose to divert surface water discharges must file wastewater change petitions with the State Water Board in accordance with Water Code section 1211, which requires consultations with the Department of Fish and Wildlife to ensure that downstream aquatic habitat is protected when discharges to surface waters are decreased.

The law has always required recycled water permittees to comply with Water Code Section 1211. Water Code section 1211 states,

(a) Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater, the owner of any wastewater treatment plant shall obtain approval of the board for that change.

(b) Subdivision (a) does not apply to changes in the discharge or use of treated wastewater that do not result in decreasing the flow in any portion of a watercourse.

The requirement that recycled water permittees comply with Water Code Section 1211 is not new. The Division of Water Rights is already required to review wastewater change petitions filed by wastewater treatment plant owners for recycled water projects that have the potential to change the point of use, place of use, or purpose of use of treated wastewater, in accordance with Water Code section 1211.

The Recycled Water Policy Amendment only clarifies what is already required by law. Therefore, the State Water Board should continue to incorporate the clarification that all recycled water permittees comply with Water Code Section 1211.

California needs to overhaul its Water Recycling Policy to re-evaluate and revise its water recycling priorities and incorporate missing components of a successful Policy that both encourages water recycling while ensuring it is protective of both public and aquatic health. We look forward to working with the State Water Board and the water recycling industry to modernize California's water recycling program.

Sincerely,



Sean Bothwell
Policy Director
California Coastkeeper Alliance