

Proposed Amendment to the Policy for Water Quality Control for Recycled Water (Recycled Water Policy)

Change Sheet #1

Changes in ~~red-strikeout text~~ are NEW deletions of the clean version of the proposed Amendment posted on November 15, 2018.

Changes in blue-underline text are NEW additions of the clean version of the proposed Amendment posted on November 15, 2018.

POLICY:

Definitions

Bioanalytical equivalent concentration (BEQ): The output from bioanalytical screening tools are referenced to a substance that initiates a physiological response from the receptor (strong agonist) to generate BEQs. A BEQ is generated from a standard curve of a strong agonist for the receptor and is expressed in mass (ng/L) or molar concentration units. A BEQ is typically derived by comparing the 50th percentile effect concentration (EC50) or 10th percentile effect concentration (EC10) responses of the test sample with the same effect concentration (EC) level of the standard curve. The BEQ is compared to the Monitoring Trigger Level in water for the strong agonist for the receptor used to generate the BEQ. [In the event the sample BEQ result is at or below the Reporting Limit in Table 3 of Attachment A, the Reporting Limit shall be used to generate the BEQ.](#)

Wastewater treatment plant: Any of the following, as defined in Water Code section 13625(d):

(A) Any facility owned by a state, local, or federal agency and used in the treatment or reclamation of sewage and industrial wastes.

(B) Any privately-owned facility used in the treatment or reclamation of sewage and industrial wastes and regulated by the Public Utilities Commission pursuant to Sections 216 and 230.6 of, and Chapter 4 (commencing with Section 701) of Part 1 of Division 1, of the Public Utilities Code.

(C) Any privately-owned facility used primarily in the treatment or reclamation of sewage for which the state board or a regional board has issued waste discharge requirements. [Consistent with California Code of Regulations, title 23, section 3671, the term “wastewater treatment plant” does not include onsite sewage treatment systems as defined in Water Code section 13290.](#)

Section 6.1.2

Salts and nutrients from all sources must be managed on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses. The most effective way to address salt and nutrient [loading issues](#) is typically through the development of regional or subregional salt and nutrient management plans rather than imposing requirements solely on individual recycled water projects or other individual sources of salts and nutrients.

Section 6.2.3

Regional water board review and acceptance of salt and nutrient management plans. Proposed salt and nutrient management plans shall be submitted to the regional water board for review. The regional water board shall evaluate the salt and nutrient management plan in accordance with the provisions of 6.2.4. Following review, the regional water board shall make one of the following determinations through a resolution. This determination shall be made within six months of receipt of a proposed salt and nutrient management plan, unless compliance with CEQA is required [and the regional water board notifies the public of this within the six-month period.](#)

Section 7.4

Site-specific monitoring. For non-potable recycled water projects, project-specific groundwater monitoring shall not be required if the criteria below are met, unless the regional water board determines there are unique site-specific conditions, or unless such project-specific monitoring is required under the accepted salt and nutrient management plan, ~~or~~ applicable basin plan, or other Water Board program such as the Irrigated Lands Regulatory Program. Unique site-specific conditions include but are not limited to areas where recycled water is proposed to be used for irrigation over high transmissivity soils over a shallow (5' or less) high quality groundwater aquifer or proposed to be stored in unlined ponds where the regional water board determines that it will result in an unacceptable threat to groundwater quality. The criteria are:

Section 11.2.2

If an enrollee under an existing regional water board general order for non-potable uses of recycled water has a Title 22 ~~E~~ngineering ~~R~~eport approved after January 1, 2001, the regional water board shall transition the enrollee to Order WQ 2016-0068-DDW or its successor, unless a site-specific order is more appropriate, before [one year from the effective date of this Policy].

Section 11.3.2

~~The r~~Regional water boards shall review all recycled water permits and shall update any recycled water permits and/or monitoring and reporting programs that are (1) inconsistent with this Policy; (2) inconsistent with an approved Title 22 engineering report pursuant to 11.3.1; or (3) inconsistent with the applicable regional water board basin plan. Regional water boards shall enroll permittees in Order WQ 2016-0068-DDW or its successor if appropriate.

Section 11.3.4

~~The regional water boards~~~~Groundwater recharge projects and reservoir water augmentation projects~~ shall ~~be~~ periodically updated permits for groundwater recharge and reservoir water augmentation consistent with the requirements for update of Title 22 ~~E~~ngineering ~~R~~eports in California Code of Regulations, title 22.

ATTACHMENT A:

Third Paragraph, pg. A-1

The regional water boards shall not issue requirements for monitoring of additional CECs or bioanalytical screening in recycled water beyond the requirements provided in this Policy except when recommended by the State Water Board following the review of the Title 22 ~~E~~ngineering ~~R~~eport or when requested by the recycled water producer. However, the regional water boards can require other monitoring requirements consistent with their authorities.

Footnote ¹ pg. A-1

¹ The Science Advisory Panel was convened in accordance with provision 10.2 of the Policy. The Panel's recommendations were presented in the report Monitoring Strategies for Constituents of Emerging Concern (CECs) in Recycled Water – Recommendations of a Science Advisory Panel, dated April 2018² ~~Standards for disinfected tertiary recycled water presented in California Code of Regulations, title 22, section 60301.230 and 60301.320.~~

Section 1.2

A laboratory providing analyses of CECs and bioanalytical screening must hold a valid certificate of accreditation from the State of California Environmental Laboratory Accreditation Program (ELAP) for the analytical test methods or analytes selected, if such methods or analytes are accredited by ELAP at the time that monitoring is required to begin. If ELAP accreditation for analytical test methods or an analyte becomes available after monitoring is initiated, then the laboratory providing analysis of CECs shall be accredited by ELAP for those methods or analytes within one year of such accreditation becoming available. If ELAP accreditation is unavailable for a method or an analyte, the recycled water producer shall use a laboratory that has been accredited for a similar analytical method, instrumentation, or analyte until ELAP accreditation becomes available, unless otherwise approved by the regional water board or State Water Board.

Section 4, second paragraph

A recycled water producer may submit existing CEC monitoring data for the health-based CECs and performance indicator CECs, surrogates for CECs, and bioanalytical screening tools from a water recycling treatment plant with a State Water Board-approved Title 22 ~~E~~ngineering ~~R~~eport to the regional water board to satisfy the requirements in the initial assessment or baseline monitoring phase. If the regional water board, in consultation with the State Water Board, determines the existing CEC monitoring data meet the intent of the initial assessment phase (section 4.1 below), it may allow a recycled water producer to initiate the baseline monitoring phase (section 4.2 below). If the regional water board, in consultation with the State Water Board, determines the existing CEC monitoring data meet the intent of the baseline monitoring phases, the recycled water producer can initiate the standard operation monitoring phase. All facilities must conduct the standard operation monitoring phase.

Section 4.1, second paragraph

The purpose of the initial assessment phase is to: (1) identify the occurrence of health-based CECs, performance indicator CECs, and surrogates in recycled water for groundwater recharge or reservoir water augmentation; (2) determine treatment effectiveness; (3) define the project-specific performance indicator CECs and surrogates to monitor during the baseline monitoring phase; (4) specify the expected removal percentages for performance indicator CECs and surrogates; and (5) gather bioactivity data for ER- α and AhR bioanalytical screening tools to determine the range of responses for the bioassays for standardized water quality monitoring. The Initial Assessment Phase shall be conducted after the water recycling treatment plant has received approval from the State Water Board for the facility's Title 22 ~~E~~ngineering ~~R~~eport.

Table 5

Baseline ~~Phase~~-Monitoring Phase Requirements

Section 5

EVALUATION OF CECs, SURROGATEs, AND BIOANALYTICAL SCREENING TOOL MONITORING RESULTS

Table 1: Required Equivalency Agonists and Monitoring Trigger Levels for Bioanalytical Screening Tools

Constituent/ Parameter	Equivalency Agonist	Monitoring Trigger Level (nanograms/liter) ¹
Estrogen receptor- α (ER- α)	17-beta-estradiol	3.5
Aryl hydrocarbon receptor (AhR)	2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)	0.5

¹ The MTL for ER- α represents a health-based MTL. The MTL for AhR represents a level which may or may not be indicative of a health-based effect due to the wide variation in health-based predicted no-effect concentrations of agonists.

Table 2: BEQ/MTL Thresholds and Response Actions for Bioanalytical Screening Tools

BEQ/MTL Threshold	Response Action
If BEQ/MTL ratio is consistently less than or equal to 0.15 for ER- α or 1.0 for AhR	A) After completion of the baseline monitoring phase, consider decreasing monitoring frequency or requesting removal of the endpoint from the monitoring program.
If BEQ/MTL ratio is greater than 0.15 and less than or equal to 10 for ER- α or greater than 1.0 and less than or equal to 10 for AhR	B) Continue to monitor.
If BEQ/MTL ratio is greater than 10 and less than or equal to 1000	C) Check the data, resample within 72 hours of notification of the result and analyze to confirm bioassay result. Continue to monitor. Contact the regional water board and State the Water Board to discuss additional actions, which may include, but are not limited to, targeted analytical chemistry monitoring, increased frequency of bioassay monitoring, and implementation of a source identification program.
If BEQ/MTL ratio is greater than 1000	D) Check the data, resample within 72 hours of notification of the result and analyze to confirm bioassay result. Continue to monitor. Contact the regional water board and the State Water Board to discuss additional actions, which may include, but are not limited to, targeted and/or non-targeted analytical chemistry monitoring, increased frequency of bioassay monitoring, toxicological studies, engineering removal studies, modification of facility operation, implementation of a source identification program, and monitoring at additional locations.

STAFF REPORT WITH SUBSTITUTE ENVIRONMENTAL DOCUMENTATION:

Section 2.2.3

Recycled water available for reuse under Order WQ 2016-0068-DDW is required to be adequately treated by wastewater treatment processes to water quality levels that are in compliance with permits issued by the Water Boards. Order WQ 2016-0068-DDW does not include treatment specifications, so recycled water producers seeking coverage under this order [generally](#) would also need separate WDRs or an NPDES permit for the production of recycled water. However, Order WQ 2016-0068-DDW reduces the need for separate water recycling requirements (WRRs) for new recycled water use sites within a use area covered by an administrator.

Section 4.5.2 (formatting change: underline removed)

- Natural systems, such as wetlands, wildlife habitats, and duck clubs, where augmentation or restoration has occurred, and that are not part of a wastewater treatment plant.

Section 4.5.2

The Amendment requires monthly collection and annual reporting of the volumes of influent, treated wastewater produced, and treated wastewater discharged, and requires at least annual reporting of the volume of recycled water used. This frequency of data collection and reporting for influent, production, and discharge is intended to capture volumetric trends that will delineate the potential of recycled water in California in terms of treatment, use, and potential. In addition, more frequent data for these volumes may provide useful information for the State Water Board and others to answer management questions (e.g., how influent volume changes during drought conditions). Monthly data collection is not expected to be burdensome since these should be volumetric data that facilities can easily report based on flow. The reason for allowing annual collection and reporting for recycled water use is that determining the different use categories for recycled water may not be a simple task for some facilities that distribute treated wastewater to other distributors or retailers, as they may need to work with those other entities to track and report the volumes of recycled water use for the various categories outlined above. Annual reports of the volumes of influent and treated wastewater produced, discharged, and recycled are anticipated to be submitted [in April](#) ~~between January and March~~ of each year [for the previous calendar year](#).

Section 4.8.2

The ~~Policy~~[Amendment requires the regional water board to make a determination regarding acceptance of an SNMP through a regional water board resolution within six months of receipt of the accepted SNMP, states that SNMPS include unless compliance with CEQA is required. If compliance with CEQA is required, the Amendment requires the regional water board to notify the public of this within six months of receipt of a proposed SNMP.](#) Compliance with CEQA may be required if the regional water boards choose to consider basin plan amendments that are based on the SNMPS, including establishment of new or modified water quality objectives or new rules for regulating salt and nutrient discharges. Compliance with CEQA may also be required if the regional water board accepts an SNMP through a resolution because the SNMP

may include future recycled water projects that have not yet gone through the CEQA process. A resolution accepting an SNMP could, in certain limited circumstances, be considered an implicit approval of these future projects, which could constitute an action subject to CEQA.

Section 4.10.4

The final subsection under the section on permitting and antidegradation analysis for non-potable recycled water projects regards site-specific groundwater monitoring. The Amendment states that project-specific groundwater monitoring shall not be required for non-potable recycled water projects if two criteria are met, unless the regional water board determines there are unique site-specific conditions, or unless such project-specific monitoring is required under the accepted SNMP, ~~or~~ applicable basin plan, or other Water Board program such as the Irrigated Lands Regulatory Program. The two criteria are 1) for irrigation projects, application of recycled water at rates to minimize percolation of recycled water below the plant's root zone, and 2) appropriate use of fertilizer that takes into account nutrient levels in recycled water and nutrient demand by plants. This statement expands on existing language in the Policy limiting project-specific groundwater monitoring for landscape irrigation projects that meet the streamlined permitting criteria. The two criteria included here are critical to justify the restriction of groundwater monitoring and for the application of recycled water in a manner that protects water quality. These criteria are included as streamlined permitting criteria in the Policy.

Section 4.14.1

Cost estimates for the targeted CEC analyses are given in Table 4-4, pursuant to Water Code section 13267. Costs for analyzing the complete set of analytes in Table 4-3 would be approximately \$1,450-2,075 ~~1,250-\$1,600~~ per sample, which would apply to surface application groundwater recharge projects. For reservoir water augmentation and subsurface application groundwater recharge projects, the analyte list does not include gemfibrozil and iohexol, thus the cost of analysis may be lower for laboratories that run these separately from other CECs. For the shorter list of analytes, the cost would be approximately \$1,050-1,325 ~~850~~ per sample. The estimated costs for the targeted chemical analyses for the first four years of monitoring and thereafter are given in Table 4-4. There are multiple commercial laboratories in California that can provide these analyses, as well as multiple laboratories outside of California.

Table 4-4

Table 4-4 Cost estimates for targeted chemical analyses

Monitoring phase	Year	Number of samples per year	Groundwater recharge – surface application (9 ⁷ CECs) Cost per sample: \$2,075 1600	Reservoir water augmentation and Groundwater recharge – subsurface application (7 ⁵ CECs) Cost per sample: \$1,325 600
Initial assessment	1	4	\$8,300 6,400	\$5,300 3,400
Baseline	2	2	\$4,150 3,200	\$2,650 1,700
	3	2	\$4,150 3,200	\$2,650 1,700
	4	2	\$4,150 3,200	\$2,650 1,700
Subtotal for years 1-4		10	\$20,75016,000	\$13,2506,400
Standard operating	5 and thereafter	2	\$4,150 3,200 per year	\$2,650 1,700 per year