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STATE WATER RESOURCES CONTROL BOARD BOARD MEETING SESSION - DIVISION OF WATER QUALITY DATE - TBD

ITEM

SUBJECT

CONSIDERATION OF A RESOLUTION APPROVING AMENDMENTS TO THE WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO RIVER AND SAN JOAQUIN RIVER BASINS ESTABLISHING SITE SPECIFIC OBJECTIVES FOR CHLOROFORM, CHLORODIBROMOMETHANE, AND DICHLOROBROMOMETHANE, FOR NEW ALAMO AND ULATIS CREEKS, SOLANO COUNTY, AND PERMIT IMPLEMENTATION PROVISIONS

BACKGROUND

On May 27, 2010, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted [Resolution No. R5-2010-0047](#) amending the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) to include site specific objectives (SSOs) in New Alamo and Ulatis Creeks for Chloroform, chlorodibromomethane (DBCM), and dichlorobromomethane (DCBM). The amendments also include National Pollutant Discharge Elimination System (NPDES) implementation provisions for municipal discharges to Old Alamo Creek, which is a tributary to New Alamo Creek and Ulatis Creek.

WATER BODIES OF INTEREST

Alamo Creek originates in the Vaca Mountains and flows east-southeast through the City of Vacaville, ultimately joining Ulatis Creek on the Sacramento Valley floor. In the early 1960's, as part of the Ulatis Creek Watershed Protection and Flood Prevention Project, portions of Alamo Creek were realigned to form a new channel (New Alamo Creek), bypassing the City of Vacaville. The original creek segment was renamed Old Alamo Creek. Cut off from the upland watershed, Old Alamo Creek is now effluent-dominated, with flows predominantly from the Easterly Wastewater Treatment Plant and other point and non-point discharges. Approximately two miles from the confluence with Old Alamo Creek, New Alamo Creek discharges into Ulatis Creek, which eventually drains into Cache Slough. Immediately downstream of the confluence of Cache Slough and Ulatis Creek is the non-operational Vallejo Pump Station, an emergency drinking water intake for the City of Vallejo that has not been used since 1992. The City of Vallejo does not hold a current permit from the California Department of Public Health (DPH) to use the Vallejo Pump Station, and the facility is not in operating condition.

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Beneficial uses for New Alamo Creeks are not specifically identified in the Basin Plan and, therefore, are designated via the tributary statement which includes municipal (MUN). Despite these beneficial use assignments, water rights records, field surveys, and interviews indicate that the MUN use has not occurred, nor is it expected to occur, in New Alamo and Ulatis Creeks in the future, based on system hydrologic and water quality characteristics¹. Beneficial Uses are also assigned to Old Alamo Creek using the tributary statement, except that basin plan explicitly excludes MUN, Cold Freshwater Habitat (COLD), Migration of Aquatic Organisms (MIGR), and Spawning, Reproduction, and/or Early Development (SPWN) from applying to Old Alamo Creek².

PROJECT DESCRIPTION

The City of Vacaville's Easterly Wastewater Treatment Plant (WWTP) disinfects treated effluent with sodium hypochlorite to inactivate pathogens that may be present in the wastewater. The disinfection byproducts chloroform, DBCM, and DCBM, collectively known as trihalomethanes (THM), are formed in the wastewater during the disinfection process. The wastewater discharge from the Easterly WWTP causes concentrations of DBCM and DCBM in lower New Alamo and Ulatis Creeks to exceed current human health water quality criteria established in the California Toxics Rule, as well as U.S. EPA recommended human health criteria for chloroform (there currently is no adopted numeric criteria for chloroform). The Easterly WWTP discharge does not, however, cause the segments to exceed the DPH's drinking water Maximum Contaminant Level (MCL) of 80 µg/l, applicable for total THMs in treated drinking water supplies.

There is a need to refine the water quality criteria associated with chloroform, DBCM and DCBM applicable to the lower segments of New Alamo Creek and Ulatis Creek because the current criteria are based on the assumption that people are using these waters as their primary drinking water supply over the course of a 70-year lifetime – a level of use that has never occurred in the past, is not currently occurring, and is not expected to occur in the future. The Central Valley Water Board has concluded that limiting THM concentrations in lower New Alamo and Ulatis Creek segments to levels required by current criteria is not necessary and would require costly upgrades to the Easterly WWTP in an effort to comply with current criteria. Instead, the Central Valley Water Board has adopted basin plan amendments that include site-specific water quality objectives and associated NPDES permit implementation provisions. These amendments are intended to protect transient or incidental use while providing an acceptable level of protection to protect the MUN beneficial use in Cache Slough, the next downstream water body.

¹ The City of Vacaville conducted a use attainability analysis for the lower portions of New Alamo Creek and Ulatis Creek. This use attainability analysis concluded that MUN is neither an existing nor an attainable use in these water body segments. However, the Regional Water Board determined that it is important to maintain the MUN designation in order to maintain water quality in the lower New Alamo Creek and Ulatis Creek segments at a level sufficient to protect potential future transient and incidental use of water in the creeks for drinking water should such a use ever occur.

² MUN, COLD, MIGR, and SPWN uses were dedesignated on Old Alamo Creek through order R5-2005-0053, adopted by the Regional Board on April 28, 2005 and approved by U.S. EPA on August 7, 2006.

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SITE SPECIFIC OBJECTIVES

The adopted site-specific objectives for the lower segments of New Alamo and Ulatis Creeks are as follows:

- DBCM: 4.9 µg/l
- DCBM: 16 µg/l
- Chloroform: 46 µg/l

The preamble of the California Toxics Rule acknowledges that the State has the discretion to adopt water quality criteria that protect to a higher risk level than more stringent 10^{-6} incremental cancer risk level, as long as the most highly exposed subpopulations are protected (65 FR 31699). U.S. EPA also acknowledges that on a statewide, regional, or water body level basis, a 10^{-5} risk level (e.g., a 10^{-5} risk of cancer over the course of a lifetime exposure) may be appropriate as long as the risk level to the most highly exposed population groups does not exceed 10^{-4} . The site specific objectives provide a level of protection that meets the minimum level recommended by the U.S. EPA while protecting the MUN use in the other water segments downstream. This minimum level would protect the potential transient use of the creeks, which is the only potential use expected based on historical data.

These objectives were derived to: 1) provide a lifetime 10^{-4} or lower (i.e., more protective) cancer risk level for DBCM, DCBM, and chloroform for any and all parties who could potentially make use of segments waters as a drinking water supply; and 2) control and limit DBCM, DCBM, and chloroform concentrations within the segments to the upper end of the concentration distributions observed for these constituents, based on historical monitoring data at the head of the segments. These site-specific objectives assure a maximum 10^{-4} risk level even if the population consumed 2 l/day of water and up to 17.5 g/day of fish/shellfish for a 70-year lifespan, neither of which is expected to occur. Any future drinking water use of waters in this segment is expected to be transient and incidental in nature. As a result, risk levels for potential future transient and incidental drinking water use from the segments are estimated to be lower than 10^{-5} . For this reason, the site-specific objectives provide reasonable protection of the MUN use of segment waters; minimize additional future degradation of segment water quality for DBCM, DCBM, and chloroform; and efficiently and cost-effectively resolve the THM regulatory compliance issue faced by the City of Vacaville in operating its Easterly WWTP.

IMPLEMENTATION PROVISIONS

The State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) to provide the implementation procedures for the California Toxics Rule. However, the SIP does not include specific implementation procedures to address a situation where water bodies downstream of the first receiving water have applicable water quality objectives that are more stringent than the water quality objectives of the first receiving water, as is the case with New and Old Alamo creek. While New Alamo Creek has the beneficial use of MUN, Old Alamo Creek does not. In addition, THM levels are attenuated (i.e., decreased through volatilization and seasonally through dilution) as water flows down Old Alamo Creek below the Easterly WWTP. To address this, the amendments include a methodology to determine reasonable potential, and should it exist, to derive effluent limitations for point source discharges into Old Alamo Creek. This methodology includes the use of "Attenuation Factors" to account for reductions in DBCM, DCBM, and chloroform concentrations between the point of discharge and the compliance monitoring location. The compliance monitoring location is specified as the

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terminus of Old Alamo Creek, where it discharges into the head of the New Alamo Creek segment. All other provisions of the SIP, not in conflict with the site-specific implementation provisions of the amendments, also would apply to the derivation of water quality based effluent limitations.

POLICY ISSUE

Should the State Water Board approve the amendments to the Basin Plan to establish SSOs for New Alamo and Ulati Creek and incorporate new permit implementation provisions?

FISCAL IMPACT

Central Valley Water Board and State Water Board staff work associated with or resulting from this action will be addressed with existing and future budgeted resources.

REGIONAL WATER BOARD IMPACT

Yes, approval of this resolution will amend the Central Valley Water Board's Basin Plan.

STAFF RECOMMENDATION

That the State Water Board:

1. Approves the amendments to the Basin Plan adopted under Central Valley Water Board Resolution R5-2010-0047.
2. Authorizes the Executive Director, or designee, to transmit the amendments adopted under Central Valley Water Board's Resolution R5-2010-0047 to the Office of Administrative Law and the U.S. Environmental Protection Agency.

State Water Board action on this item will assist the Water Boards in reaching Objective 4.3 of the Strategic Plan Update: 2008-2012 to achieve near-term priority Basin Plan amendment needs by collaborating in third-party initiated processes that incorporate Water Board requirements and stakeholder interests.

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STATE WATER RESOURCES CONTROL BOARD RESOLUTION NO. 2011-

APPROVING AMENDMENTS TO THE WATER QUALITY CONTROL PLAN FOR THE FOR THE SACRAMENTO RIVER AND SAN JOAQUIN RIVER BASINS ESTABLISHING SITE SPECIFIC OBJECTIVES FOR CHLOROFORM, CHLORODIBROMOMETHANE, AND DICHLOROBROMOMETHANE, FOR NEW ALAMO AND ULATIS CREEKS, SOLANO COUNTY AND PERMIT IMPLEMENTATION PROVISIONS

WHEREAS:

1. On May 27, 2010 the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted [Resolution R5-2010-0047](#) amending the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) to establish site-specific water quality objectives for chloroform, chlorodibromomethane and dichlorobromomethane to provide appropriate levels of human health protection based on past, present, and reasonably-foreseeable future drinking water use in New Alamo and Ulatis Creeks, and to maintain current levels of Municipal and Domestic Supply Beneficial Use (MUN) protection for trihalomethanes in water bodies downstream of these segments. The amendments also include permit implementation provisions for point source dischargers to Old Alamo Creek to assure the protection of MUN in New Alamo and Ulatis Creeks.
2. The Central Valley Water Board found that the analysis contained in the Final Project Report, including the California Environmental Quality Act (CEQA) Checklist, the staff report, and the responses to comments complies with the requirements of the State Water Resources Control Board's (State Water Board's) certified regulatory CEQA process, as set forth in the California Code of Regulations, Title 23, section 3775 et seq.
3. The Central Valley Water Board found the Basin Plan amendments would not have a significant adverse effect on the environment and are consistent with the Statement of Policy with Respect to Maintaining High Quality of Waters in California (State Water Board Resolution No. 68-16) and the federal Antidegradation Policy (40 CFR part 131.12).
4. The scientific basis for the amendments was subjected to an independent, external peer review, pursuant to the requirements of Health and Safety Code section 57004. Central Valley Water Board staff revised the Basin Plan amendments in response to the comments provided by the reviewers, or provided a written response that explained the basis for not incorporating other proposed changes. The peer reviewers' responses confirmed that the rulemaking portions of the amendments and implementation provisions are based on sound scientific knowledge, methods, and practices.
5. The State Water Resources Control Board (State Water Board) finds that, in amending the Basin Plan, the Central Valley Water Board complied with the requirements set forth in sections 13240, et seq. of the California Water Code. The State Water Board also finds that the regulatory action meets the "necessity" standard of the Administrative Procedures Act, Government Code section 11353, Subdivision (b).
6. The State Water Board finds that the Basin Plan amendments are in conformance with Water Code section 13240, which specifies that Regional Water Quality Control Board may revise Basin Plans.

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7. The Basin Plan amendments do not become effective until approved by the State Water Board and until the regulatory provisions are approved by the Office of Administrative Law (OAL). The amendments must also be approved by the U.S. Environmental Protection Agency (U.S. EPA).

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Approves the amendments to the Basin Plan as adopted under Central Valley Water Board's Resolution No. R5-2010-0047.
2. Authorizes the Executive Director or designee to submit the amendments adopted under Central Valley Water Board's Resolution No. R5-2010-0047 to OAL and U.S. EPA for approval.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on (TBD).

Jeanine Townsend
Clerk to the Board