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

### ITEM XX

#### SUBJECT

CONSIDERATION OF A RESOLUTION APPROVING AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO RIVER AND SAN JOAQUIN RIVER BASINS (BASIN PLAN) TO REVISE WATER QUALITY OBJECTIVES FOR pH AND TURBIDITY

#### DISCUSSION

On October 25, 2007, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted [Resolution No. R5-2007-0136](#) amending the Basin Plan to revise water quality objectives for pH and turbidity.

In its most recent (2005) triennial review of the Basin Plan, the Central Valley Water Board identified the need to resolve water quality regulation problems common to low flow water bodies that become effluent dominated water bodies (EDWs) after receiving discharges. The municipal wastewater treatment plants that discharge to low flow streams have difficulty complying consistently with the Basin Plan's current pH and turbidity water quality objectives. Even tertiary treatment plants that use more stringent treatment methods have difficulty achieving consistent compliance. Conversely, dischargers to high flow waterways do not have permit compliance problems associated with the current pH objective or with the 0-5 Nephelometric Turbidity Unit (NTU) turbidity objective because of dilution that occurs, and because the turbidity of high flow waterways is more often above 5 NTUs.

The objective of the Basin Plan amendment is to update the pH and low-level turbidity objectives, and to resolve common regulatory problems involving publicly owned treatment works (POTWs) and the pH and low-level turbidity objectives. The current pH and turbidity objectives are more stringent than current science recommends to protect beneficial uses, and more stringent than current Clean Water Act (CWA) section 304(a)(1) recommended water quality criteria. To resolve these regulatory difficulties, the Central Valley Water Board amended the Basin Plan's existing pH and turbidity water quality objectives. The amendments to the pH and turbidity objectives are consistent with current science, based on CWA section 304(a) criteria guidance, consistent with federal and State antidegradation policies, and will continue to protect existing and potential beneficial uses.

#### WATER QUALITY OBJECTIVES

##### pH Objective

The Basin Plan's current general pH objective is as follows:

*"The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses. In determining compliance with the water quality objective for pH, appropriate averaging periods may be applied provided that beneficial uses will be fully protected."*

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Among the beneficial uses defined in the Basin Plan, aquatic life beneficial uses are, in general, the uses most sensitive to pH levels, and are the only beneficial uses potentially affected by changes in pH within the range of 6.5 to 8.5. Scientific literature provides evidence that, when pH is maintained within the range of 6.5 to 8.5, rapid changes in pH do not cause adverse impacts to freshwater aquatic life. Thus, the current pH objective found in the Basin Plan is overly stringent when compared to current science regarding the effects of pH on freshwater aquatic life and other beneficial uses.

Dischargers to low flow water bodies have difficulty complying with portions of the current pH objective. For this reason, the averaging period provision found in the Basin Plan was used to assist dischargers to achieve compliance with the 0.5 pH change limit. However, none of the pH criteria recommended by the United States Environmental Protection Agency (U.S. EPA) or other experts incorporates a limit of 0.5 for change of pH within the range of 6.5 to 8.5. Since 1976, U.S. EPA's recommended pH criterion for the protection of freshwater aquatic life continues to be maintenance of water body pH between 6.5 and 9.0. It does not quantitatively limit the magnitude of rapid change that freshwater organisms can be exposed to within this range. Therefore, it does not appear necessary to regulate rapid pH changes by a maximum limit of 0.5 to protect beneficial uses while the ambient pH is maintained between 6.5 to 8.5. For this reason, the amendment eliminates the "0.5 pH unit change" component of the current objective and the "appropriate averaging periods" component associated with the 0.5 pH unit change. The amendment also eliminates the site-specific pH objective for Deer Creek (adopted in 2002) because it is the same as the amended pH objective. In addition, any controllable discharges that affect water quality (e.g., municipal discharges of treated wastewater) would continue to not be permitted to cause a water body's pH to be outside the range of 6.5 to 8.5.

## **Turbidity Objective**

The Basin Plan's current general turbidity objective is as follows:

*"Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:*

- *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*
- *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
- *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
- *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.*

*In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected."*

Among the beneficial uses defined in the Basin Plan, the aquatic life and recreational uses are the uses most sensitive to turbidity levels. The current objective limits turbidity increases to 1 NTU where natural turbidity is between 0 and 5 NTUs. A review of past and current scientific literature indicates that freshwater aquatic life does not require that changes in turbidity be limited to 1 NTU when natural turbidity is 0 to 5 NTUs, as required in the current Basin Plan. Moreover, at low turbidities the visual, aesthetic quality of water bodies differs negligibly and, to protect recreational uses, change in turbidity need not be limited to 1 NTU. Thus, this portion of the turbidity objective, specifically when ambient background turbidity is less than 1 NTU, is

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overly stringent when compared to current science regarding the effects of turbidity on freshwater aquatic life and other beneficial uses.

To improve compliance with turbidity water quality objectives while still supporting beneficial uses, the Central Valley Water Board adopted a revised, basin-specific turbidity objective for all waters of the Basins. The amendment to the turbidity objective affects only the portion of the water quality objectives related to turbidities between 0 to 5 NTUs and, more specifically, that portion of the objective where ambient background turbidity is less than 1 NTU. Under the amendment, the objective would provide that when “*natural turbidity is less than 1 NTU, controllable factors shall not cause downstream turbidity to exceed 2 NTUs.*” This objective was developed using scientifically supported turbidity criteria for the protection of all beneficial uses (particularly freshwater aquatic life and recreation). In addition, the other components of the current Basin Plan turbidity objective that apply when natural ambient turbidity is found to be 1 NTU or greater, are unaffected by this amendment and, therefore, their applicability will not change.

## **Applicability of pH and Turbidity Objectives**

The amendments to the Basin Plan’s current water quality objectives for pH and turbidity will be applicable throughout the Basins of the Sacramento and San Joaquin Rivers as defined in the Basin Plan, except where otherwise noted for specified water bodies. The amendments to the pH objective will affect all water bodies to which the current pH objective is applicable. The amendments to the turbidity objective will only affect creeks and streams with natural ambient turbidities below 1 NTU.

## **COMPLIANCE WITH ANTIDegradation POLICIES**

The amendment to the Basin Plan’s current pH and turbidity water quality objectives reflects current scientifically-supported pH and turbidity requirements for the protection of aquatic life and other beneficial uses listed in the Basin Plan. Changes in pH, when pH is maintained within the range of 6.5 to 8.5, are neither beneficial nor adverse, and are not considered to be degradation in water quality. Changes in turbidity allowed by the amendment, when ambient turbidity is below 1 NTU, will not adversely affect beneficial uses and will maintain water quality at a level necessary to protect beneficial uses. Restricting low-level turbidity changes further would require costly upgrades to numerous POTWs, which would not provide any additional protection of beneficial uses. Furthermore, the Central Valley Water Board will ensure compliance with the federal antidegradation policy, 40 Code of Federal Regulations 131.12(a), at the permit level, rather than the water quality standards level, because the Central Valley Water Board lacks the necessary site-specific data to address antidegradation at the standards level.

Based on regulatory, economic, and scientific findings, the amendment to the Basin Plan’s current pH and turbidity objectives is consistent with the maximum benefit to the people of the Region and the State. The amendment would not result in water quality less than that prescribed in State water quality policies.

In addition, because the pH and turbidity amendments were developed to be fully protective of all beneficial uses of the waters of the Basin, neither amendment would, upon implementation, result in conditions that would adversely affect federally-listed salmonids or their habitats. Rather, the pH and turbidity conditions that would occur under the amendments would be fully protective of the various fish species listed under the Endangered Species Act. Therefore, U.S. EPA’s approval of the amendments to the pH and turbidity objectives would not adversely

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affect any of the Central Valley Region's listed species regulated by the United States Fish and Wildlife Service.

## **IMPLEMENTATION**

When the amendment to the pH and turbidity objectives becomes effective, no specific actions will be necessary to achieve the objectives. For the pH objective, the amendment removes an unnecessarily restrictive provision. For the turbidity objective, the amendment is less restrictive than the current objective when ambient waters have turbidity less than 1 NTU. The amendment accommodates current treatment protocols that are already in place. Therefore, no additional actions are needed to achieve compliance with the proposed water quality objectives.

## **MONITORING AND SURVEILLANCE**

The amendments modify existing water quality objectives and do not include new objectives or a new implementation program. Therefore, the existing monitoring and surveillance is adequate.

## **COSTS**

The pH and turbidity amendment will alleviate the need for costly upgrades to treatment plants that discharge treated effluent to low flow streams. Therefore, there are no costs associated with implementing the amendment.

## **POLICY ISSUE**

Should the State Water Resources Control Board (State Water Board) approve the amendment for the Basin Plan to revise water quality objectives for pH and turbidity as adopted under Central Valley Water Board Resolution No. R5-2007-0136?

## **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 amendment to the Basin Plan adopted under Central Valley Water Board Resolution No. R5-2007-0136.
2. Authorizes the Executive Director or designee to submit the amendment adopted under Central Valley Water Board Resolution No. R5-2007-0136, as approved, and the administrative record for this action to the Office of Administrative Law and the water quality objectives to U.S. EPA for approval.

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## STATE WATER RESOURCES CONTROL BOARD RESOLUTION NO. 2008-

### APPROVING AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO RIVER AND SAN JOAQUIN RIVER BASINS (BASIN PLAN) TO REVISE WATER QUALITY OBJECTIVES FOR pH AND TURBIDITY

#### WHEREAS:

1. On October 25, 2007, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted [Resolution No. R5-2007-0136](#) amending the Basin Plan to revise water quality objectives for pH and turbidity.
2. The current water quality objectives for pH and turbidity, which are not supported by current science regarding the effects of pH and low-level turbidity on beneficial uses, create regulatory compliance problems for some municipal wastewater treatment plants.
3. The Central Valley Water Board has prepared amendments, which resolve the regulatory problem and are consistent with current science and with federal and State criteria and policies.
4. The Central Valley Water Board found that the scientific portions of the Basin Plan amendment are based on sound scientific knowledge, methods, and practices in accordance with Health and Safety Code section 57004.
5. The Central Valley Water Board found that the analysis contained in the staff report, the California Environmental Quality Act (CEQA) checklist, notice of public hearing, and notice of filing prepared by Central Valley Water Board staff comply with the requirements of the State Water Resources Control Board's (State Water Board) certified regulatory CEQA process, as set forth in the California Code of Regulations, Title 23, section 3775 et seq.
6. The Central Valley Water Board found that the amendment is consistent with State Water Board [Resolution No. 68-16](#), in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and the amendment is consistent with the federal Antidegradation Policy (40 Code of Federal Regulations part 131.12). The amendment is based on studies and criteria for requirements that protect aquatic life and other beneficial uses. The amendment is of maximum benefit to the people of the State and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies because the amendment is intended to result in compliance with water quality objectives. The actions to be taken are not expected to cause other impacts on water quality.
7. The State Water Board finds that the Basin Plan amendment is in conformance with Water Code section 13240, which specifies that Regional Water Quality Control Boards may revise Basin Plans, section 13241, which authorizes Regional Water Quality Control Boards to establish water quality objectives, and section 13244 which requires Regional Water Quality

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Control Boards to provide a published, public notice to all interested persons of any public hearing.

8. Based on the record as a whole, including the draft Basin Plan amendment, the environmental document, accompanying written documentation, and public comments received, the Central Valley Water Board concurred with staff's conclusion that the amendment will not result in adverse effects on fish, wildlife, or the environment, and therefore no mitigation measures are proposed.
9. A Basin Plan amendment does 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 water quality objectives must also be approved by the United States Environmental Protection Agency (U.S. EPA).

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Approves the amendment to the Basin Plan adopted under Central Valley Water Board Resolution No. R5-2007-0136.
2. Authorizes the Executive Director or designee to submit the amendment adopted under Central Valley Water Board Resolution No. R5-2007-0136, as approved, and the administrative record for this action to OAL and the water quality objectives to 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 Board held on TBD

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Jeanine Townsend  
Clerk to the Board