INFORMATIONAL DOCUMENT

Public Scoping Meeting for Evaluating Water Quality Standards for the Protection of Human Health in Alamo and Ulatis Creeks and Cache Slough, Solano County

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DRAFT

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1 Executive Summary

The Central Valley Regional Water Quality Control Board (Regional Water Board) is considering amending the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) to provide for appropriate human health protection for New Alamo and Ulatis Creeks and the upper reaches of Cache Slough. The proposed Basin Plan amendment may include (1) scientific evaluation of beneficial uses related to human health, (2) and development of site-specific water quality objectives that are protective of the existing and attainable beneficial uses.

2 Regulatory Authority and Mandates for Basin Plan Amendments

The State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards (Regional Water Boards) are the state agencies with primary responsibility for coordination and control of water quality. (California Water Code (CWC) §13000). Each Regional Water Board is required to adopt a water quality control plan, or basin plan, which provides the basis for regulatory actions to protect water quality. (CWC §13240 et seq.). Basin plans designate beneficial uses of water, water quality objectives to protect the uses, and a program of implementation to achieve the objectives. (CWC §13050(j)). Basin plans, once adopted, must be periodically reviewed and may be revised. (CWC §13240).

Under the federal Clean Water Act (CWA), 33 USC §1251 et seq., the states are required to adopt water quality standards for surface waters. (CWA §303(c)). Water quality standards consist of 1) designated uses; 2) water quality criteria necessary to protect designated uses; and 3) antidegradation policy. (CWA 303(c)(2)(A) and (d)(4)(B); 40 CFR 131.6). In California, water quality standards are found in the basin plans, statewide water quality control plans adopted by the State Water Board, and the federal National Toxics Rule (NTR) and California Toxics Rule (CTR). Under the CWA, the states must review water quality standards at least every three years.

2.1 BASIN PLAN FOR THE SACRAMENTO AND SAN JOAQUIN RIVER BASINS

The Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) first adopted the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins in 1975. The current edition (Fourth Edition, 2007) incorporates all amendments since 1975.

2.2 DESIGNATED BENEFICIAL USES

Federal regulations require the protection of designated uses. “Existing” beneficial uses of water and uses specified in the Clean Water Act Section 101(a)(2) that are attainable must be designated for protection. “Existing” uses are defined as uses that were attained on or after 28 November 1975. (40 CFR. §131.3(e)). An existing use is established if the use has been actually attained or the water quality necessary to support the use has been achieved at any time

since 28 November 1975, even if the use itself is not currently established, unless physical factors prevent attainment of the use (USEPA, 1994).

Designated uses include both existing uses and potential uses. (40 CFR §131.3(f)). In Table II-1 of the Basin Plan, beneficial uses for listed water bodies within the Sacramento and San Joaquin River basins are identified as either Existing or Potential.

For tributary streams that are not listed in Table II-1, the Basin Plan states that "[t]he beneficial uses of any specifically identified water body generally apply to its tributary streams." (Basin Plan at II-2.00). The Basin Plan states, however, that in some cases, the beneficial use may not be applicable to the entire water body and that the uses for unidentified waters will be evaluated on a case-by-case basis. (Id.) The Basin Plan also provides that water bodies that are not listed in Table II-1 are assigned municipal and domestic supply (MUN) as a beneficial use in accordance with State Water Board Resolution No. 88-63, commonly referred to as the "Sources of Drinking Water Policy" unless certain exceptions are met.

2.2.1 Federal Regulations and Guidance

USEPA's water quality standards regulations allow a State to determine that a use is not existing or subcategorize a use if the State demonstrates that attaining the use is not feasible for one of the following reasons:

(1) Naturally occurring pollutant concentrations prevent the attainment of the use; or

(2) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or

(3) Human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

(4) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or

(5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like unrelated to water quality preclude attainment of aquatic life protection uses; or

(6) Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact. (40 CFR 131.10(g)).

In order to de-designate, subcategorize, or not designate these uses, the state must support its demonstration of infeasibility with a use attainability analysis (40 CFR 131.10(j)). A use attainability analysis, or UAA, is a structured scientific assessment of the factors affecting attainment of the use, which may include physical, chemical, biological, and economic factors (40CFR 131.3(g)).

2.2.2 State Regulations and Guidance - State Water Board Sources of Drinking Water Policy (Resolution 88-63)

State Water Board Resolution No. 88-63, commonly known as the Sources of Drinking Water Policy, establishes state policy that all waters are considered suitable or potentially suitable to support the MUN beneficial use, with certain exceptions. This policy was typically implemented in basin plans with language assigning MUN to waters not identified in the basin plan's beneficial use tables (Table II-1).

The Basin Plan implements State Water Board Resolution 88-63 ("Sources of Drinking Water Policy") by assigning MUN to all water bodies not listed in Table II-1. Exceptions to the MUN designation are allowed for surface and ground waters: 1) with total dissolved solids exceeding 3,000 mg/L (5,000 µS/cm EC), 2) with contamination that cannot reasonably be treated for domestic use, 3) where there is insufficient water supply, 4) in systems designed for wastewater collection or conveying or holding agricultural drainage, or 5) regulated as a geothermal energy producing source. Resolution 88-63 addresses only designation of water as drinking water sources; it does not establish objectives for constituents that threaten source waters designated MUN.

2.3 WATER QUALITY OBJECTIVES

CWC §13050 defines water quality objectives as "*…the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.*"

2.3.1 Federal Regulations and Guidance

Federal regulations require States to adopt narrative or numeric water quality criteria (synonymous with water quality objectives) to protect designated beneficial uses. 40 CFR 131.11(a)(1). States are required to adopt numeric criteria for constituents considered priority toxic pollutants (e.g., mercury). CWA §303(c)(2)(B). Federal regulations permit States to establish water quality standards based on natural background conditions. 40 CFR 131.10.

2.3.2 State Regulations and Guidance

When adopting new water quality objectives, the Central Valley Water Board is required to consider:

(a) Past, present, and probable future beneficial uses of water.

(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.

(c) Water Quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
(d) Economic considerations.
(e) The need for developing housing within the region.
(f) The need to develop and use recycled water. (CWC §13241)

3 Watershed Description

The Ulatis Creek watershed, which includes the Alamo Creek sub-watershed, covers approximately 150 square miles within the northwestern portion of Solano County. Alamo Creek originates in the Vaca Mountains and flows east-southest through the City of Vacaville ultimately joining Ulatis Creek on the Sacramento Valley floor.

In the early 1960s, the Solano County Flood Control and Water Conservation District and the U.S. Department of Agriculture, Soil Conservation Service built the Ulatis Creek Watershed Protection and Flood Prevention Project (Solano County. 1966-1968). As part of this project, portions of Alamo Creek within the City of Vacaville were channelized and realigned, cutting off flows from the upper watershed to the lower portion of the original channel.

New Alamo Creek is an engineered earthen channel that was created as part of the Ulatis Creek Watershed Protection and Flood Prevention Project and was designed to convey flood flows from just above Leisure Town Road to the confluence with Ulatis Creek. New Alamo Creek conveys all of the flow of the Alamo Creek watershed upstream of this point. The surrounding land use is predominantly agriculture. Overall, Alamo/New Alamo Creek travels roughly 20 miles before joining Ulatis Creek. Land uses within the Alamo/New Alamo Creek watershed includes: agriculture at 57 percent; natural/forest at 25 percent; and urban at 18 percent.

Ulatis Creek also originates in the Vaca Mountains and flows through the City of Vacaville and onto the Sacramento Valley floor. Four tributaries to Ulatis Creek are primarily confined to the Sacramento Valley floor and flow through low-lying agricultural areas before joining Ulatis Creek near the eastern margin of the watershed. In addition, Alamo/New Alamo Creek is a major tributary to the lower reach of Ulatis Creek. Land uses within the Ulatis Creek watershed include: agriculture at 80 percent; natural/headwater at 11 percent; and urban at 9 percent.

Cache Slough begins at the terminus of Ulatis Creek, approximately 5.5 miles downstream of the confluence of New Alamo and Ulatis Creeks. The Cache Slough channel changes sharply in character downstream of the confluence with Ulatis Creek—the channel becomes wider, increasing from approximately 300 feet to 1,500 feet because of numerous tributaries entering from the north and east. Cache Slough, being a tributary to the Sacramento-San Joaquin Delta, is

tidally influenced. Flows from Ulatis Creek and other creeks entering Cache Slough are affected by the tidal gradient from the Delta.

Immediately downstream of the confluence of Cache Slough and Ulatis Creek is an emergency drinking water intake for the City of Vallejo that has not been used since 1992. It should be further noted that the Vallejo Pump Station does not hold a current permit from the California Department of Health Services (DHS), nor are its facilities in operating condition (RBI 2005a).

3.1 BENEFICIAL USES

Beneficial uses for Alamo and Ulatis Creeks and Cache Slough are not specifically identified in the Basin Plan, but the beneficial uses of any specifically identified water body generally apply to its tributary streams. Ulatis Creek and Cache Slough are located within the legal boundaries of the Sacramento San Joaquin Delta. The beneficial uses of the Sacramento-San Joaquin Delta, and therefore its tributaries, include: municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), industrial process supply (PRO), water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), migration of aquatic organisms (MIGR), spawning, reproduction, and/or early development (SPWN), wildlife habitat (WILD), and navigation (NAV). The Basin Plan also states that Water Bodies within the basins that do not have beneficial uses designated in Table II-1 are assigned MUN designations in accordance with the provisions of State Water Board Resolution No. 88-63.

The MUN, COLD, MIGR, and SPWN beneficial uses have been dedesignated for Old Alamo Creek per the USEPA approval on August 7, 2006.

3.2 WATER QUALITY OBJECTIVES

The Basin Plan identifies water quality objectives for water bodies having the MUN use. In 1992 and 2000, the U.S. Environmental Protection Agency (USEPA) promulgated water quality standards establishing numeric criteria for priority pollutants for the State of California in the NTR and the CTR, respectively. The standards addressed aquatic life criteria and human health criteria. The CTR states "*the standards to be applied are based on the presence in all waters of some aquatic life designation and presence or absence of the MUN designation (municipal and domestic supply).*" Where there are both water quality objectives and NTR or CTR criterion, the more stringent of the two applies.

4 Problem Statement

Preliminary surveys pertaining to the MUN use in these water body reaches indicate that this beneficial use may be neither existing nor attainable. A survey found no water rights permits, registered with the State Water Board, located from the confluence of Old Alamo and New Alamo creeks to the abandoned Vallejo Pump Station, located in Cache Slough. In addition, there are no records

of any water being diverted by adjacent (within 200 yards) landowners from the lower reaches of New Alamo Creek and Ulatis Creek (below the confluence of New Alamo Creek) (RBI 2005b).

Since 1958, the City of Vacaville has owned and operated the Easterly Wastewater Treatment Plant (WWTP), which discharges to Old Alamo Creek, tributary to Alamo Creek, tributary to Ulatis Creek, tributary to Cache Slough. In 2001, the Regional Water Board adopted Order No. 5-01-044 prescribing waste discharge requirements for the discharge of treated effluent from the Easterly WWTP. Based on the MUN beneficial use, which applies in accordance with the tributary statement described above, the Order included effluent limits derived from the Basin Plan and NTR/CTR criteria to protect human health, including nitrates and trihalomethanes (THMs).

The Easterly WWTP effluent exceeds their permit limits for nitrate and three THMs: chloroform, chlorodibromomethane (CDBM) and dichlorobromomethane (DCBM). These exceedances also cause exceedances of the water quality objectives for these four constituents in the lower reaches of Alamo Creek and Ulatis Creek. The effluent may also exceed narrative water quality objectives applicable to the MUN use.

If the Easterly WWTP must comply with the human health objectives for protection of MUN, it would require construction of additional treatment facilities at the Easterly WWTP. The total capital cost of these facilities is estimated to range from $34.1 million (SAIC 2001) to more than $171 million (J. Pelz, pers. comm.). This additional treatment includes controls more stringent than those required by sections 301(b) and 306 of the Act, and may be unnecessary to protect human health.

6 Project Alternatives

Surveys indicate that the MUN beneficial use may be neither existing nor attainable. State Water Board Order No. 2002-0015 found that where the Regional Water Board concurs that uses are neither existing nor attainable, then the Regional Water Board should reevaluate those uses. If the Regional Water Board takes action on the MUN beneficial uses, the currently applicable human health criteria from the NTR and CTR may not apply. Therefore, the Regional Water Board is considering alternatives to address the beneficial use issue as well as identify appropriate water quality objectives/criteria to protect the designated uses. Regional Water Board staff will consider any combination of the following alternatives.

Beneficial Use Alternatives

Alternative 1: No Action

Under this alternative, the designated beneficial uses for Alamo and Ulatis Creeks and Cache Slough would apply and must be protected. No change to the beneficial use designation will occur.

Alternative 2: Dedesignate the MUN beneficial use

Under this alternative, the MUN beneficial use would be dedesignated for defined reaches of Alamo and Ulatis Creeks and Cache Slough. Human health objectives for the MUN beneficial use would no longer be applicable in the defined reaches but human health would remain in place both upstream and downstream of the defined reaches.

Alternative 3: Dedesignate to a lesser than MUN human health beneficial use

Under this alternative, the MUN beneficial use would be dedesignated for defined reaches of Alamo and Ulatis Creeks and Cache Slough and a new beneficial use that is less stringent than MUN would be designated. The new beneficial use would reflect existing and attainable uses and would be protective of individual domestic supply users including, but not limited to, riparian water rights holders. This beneficial use would specifically exclude municipal water purveyors.

Possible definition of new beneficial use:
Transient use – Waters used for temporary domestic supply such as for homeless encampments.
Domestic use – Waters used for short-term domestic supply but not municipal supply. Use involves permanent or semi-permanent piping system.
Domestic use (alternative) – Waters used for low volume domestic supply. Use indicated by either temporary, small diameter pipes or no pipes.

Alternative 4: Dedesignate the MUN beneficial use for part of the year

Under this alternative, part of the year the MUN beneficial use designation would be fully protected and the remaining part of the year the MUN beneficial use would be dedesignated for defined reaches of Alamo and Ulatis Creeks and Cache Slough. Development of a new beneficial use that is less stringent than the MUN beneficial use might be considered for the part of the year when MUN would not apply.

Water Quality Objective Alternatives – Does not apply to Alternative 1

Alternative 5: No Action

Under this alternative, in combination with Alternative 2, none of the NTR and CTR criteria for water and organisms will apply to the defined reaches. The NTR and CTR criteria for organisms only will continue to apply.

Under this alternative, in combination with Alternatives 3 or 4, it is not clear what human health criteria would apply in the defined reaches. Therefore this alternative would be unacceptable in combination with Alternatives 3 and 4.

Alternative 6: Adopt the current NTR and CTR criteria for water and organisms

Under this alternative, even with the change of designated beneficial uses in defined reaches, the NTR and CTR criteria for water and organisms would be adopted as the site-specific water quality objectives (SSOs). In addition, the NTR and CTR criteria for organisms only will continue to apply.

Alternative 7: Adopt the current NTR and CTR criteria for organisms

Under this alternative, the NTR and CTR criteria for water and organisms will not apply. The NTR and CTR criteria for organisms only will continue to apply.

Alternative 8: Site-Specific Objectives for Constituents of Concern

Under this alternative, the NTR and CTR criteria for water and organisms will not apply. Constituents of concern will be identified in accordance with 40 CFR § 131.11 and SSOs will be developed for the constituents of concern. SSOs may be based on:

1. Protection of the designated uses
2. A higher carcinogenicity risk factor
3. Lesser consumption of water
4. Lesser period of exposure
5. Use of DHS criteria in lieu of EPA criteria
6. Use of other scientifically sound criteria
7. Any combination of the above

The NTR and CTR criteria for organisms only will continue to apply.

Cited References

Pelz, J. 2007. Letter from Jeffrey D. Pelz (Vice President, West Yost Associates) to Betty Yee (California Regional Water Quality Control Board, Central Valley Region, Sacramento) dated 7 May 2007 transmitting two copies of West Yost Associates 2001 and explaining how the information in West Yost Associates 2001 may be used to provide estimated cost of additional treatment at the Easterly Wastewater Treatment Facility.

Robertson-Bryan, Inc. (RBI) 2005a. Use Attainability Analysis for Alamo Creek and Downstream Water Bodies. Technical Memorandum No. 1. Hydrologic and Physical Characteristics of Alamo Creek, Ulatis Creek, and Cache Slough. August.

Robertson-Bryan, Inc. (RBI) 2005b. Use Attainability Analysis for Alamo Creek and Downstream Water Bodies. Technical Memorandum No. 2. Existing Municipal and Domestic Uses of Alamo Creek, Ulatis Creek, and Cache Slough. August.

SAIC. 2001. Potential Costs for Complying with the NPDES Permit for the City of Vacaville's Easterly Wastewater Treatment Plant. August.

Solano County. 1966-68. Ulasis Creek Watershed Protection and Flood Prevention Project. Plans for the construction of Ulatis Creek channel U-3 and Alamo Creek Channel A-2b. As Built Drawings.

West Yost Associates. 2001. Easterly WWTP NPDES Permit Compliance Analysis. 8 August 2001.