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11 CITY OF VACAVILLE

12  
13 BEFORE THE  
14 CALIFORNIA STATE WATER RESOURCES CONTROL BOARD  
15

16 In the Matter of City of Vacaville's Petition for  
Review of Action and Failure to Act by the  
17 California Regional Water Quality Control  
Board, Central Valley Region, in Adopting  
18 Waste Discharge Requirements for City of  
Vacaville Easterly Wastewater Treatment Plant,  
19 Order No. R5-2008-0055 (NPDES  
No. CA0079049), and Time Schedule Order  
20 No. R5-2008-0056.

SWRCB/OCC File \_\_\_\_\_

DECLARATION OF MICHAEL BRYAN,  
Ph.D. IN SUPPORT OF CITY OF  
VACAVILLE'S REQUEST FOR STAY OF  
ORDER NOS. R5-2008-0055 AND  
R5-2008-0056

21  
22 I, Michael Bryan, declare as follows:

23 1. I am a partner/principal scientist with Robertson-Bryan, Inc. and have over  
24 20 years of combined consulting and research experience primarily in water quality, toxicology  
25 and fisheries biology. I am a consultant to the City of Vacaville (Vacaville).

26 2. I currently serve as lead consultant for a project for Vacaville related to evaluation  
27 of water quality standards for receiving waters downstream of the Easterly Wastewater  
28

1 Treatment Plant. I served as Vacaville's lead consultant for the de-designation of MUN and  
2 COLD uses from Old Alamo Creek.

3 3. I am presently involved in activities related to evaluation of water quality  
4 standards for New Alamo Creek and Ulatis Creek, including work that could support Basin Plan  
5 amendments. I have directed the preparation of and have direct knowledge of all research, studies  
6 and reports prepared for Vacaville as a part of this process.

7 4. Exhibit A attached hereto is a true and correct copy of the *Draft Report – Use*  
8 *Attainability Analysis for Municipal and Domestic Supply (MUN) Use in Segments of New Alamo*  
9 *Creek and Ulatis Creek, Solano County, California* (UAA Study), as prepared by Robertson-  
10 Bryan, Inc. on behalf of Vacaville and submitted to the California Regional Water Quality  
11 Control Board, Central Valley Region (Regional Water Board) in December of 2007. Although  
12 the UAA Study retains the Draft label, to the best of my knowledge, all data, information and  
13 conclusions it contains are correct. The conclusions below are drawn from the UAA Study.

14 5. In 1961, the Ulatis Soil Conservation District, Solano Irrigation District, and  
15 Solano County Flood Control and Water Conservation District developed the Ulatis Creek  
16 Watershed Work Plan, which included the construction of floodwater channels. (Exhibit A at  
17 p. 6.)

18 6. New Alamo Creek is an engineered channel that was designed and constructed as  
19 part of the Ulatis Creek Watershed Work Plan. (Exh. A at p. 8.)

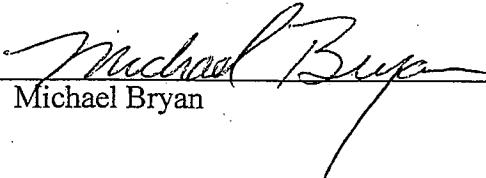
20 7. There is no existing municipal or domestic (MUN) use and there is no evidence  
21 any such use has ever occurred in New Alamo Creek since November 28, 1975. (Exh. A at  
22 p. 24.)

23 8. Water quality in New Alamo Creek is not sufficient, nor has it ever been  
24 sufficient, to support the MUN use to occur. (Exh. A at p. 24.)

25 9. Natural conditions and other factors preclude the attainment of MUN in New  
26 Alamo Creek. (Exh. A at p. 36.)  
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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed this 23 day of May 2008.

  
Michael Bryan

SOMACH SIMMONS & DUNN  
A Professional Corporation



DRAFT REPORT

USE ATTAINABILITY ANALYSIS FOR  
MUNICIPAL AND DOMESTIC SUPPLY (MUN) USE IN  
SEGMENTS OF NEW ALAMO CREEK AND ULATIS CREEK,  
SOLANO COUNTY, CALIFORNIA

*Prepared for:*

**Central Valley Regional Water Quality Control Board**

*Prepared by:*

*ROBERTSON-BRYAN, INC.*

*On Behalf of:*

**City of Vacaville**

December 2007

**DRAFT REPORT**

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MUNICIPAL AND DOMESTIC SUPPLY (MUN) USE IN  
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SOLANO COUNTY, CALIFORNIA**

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December 2007

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## ACRONYMS AND ABBREVIATIONS

ADWF	average dry weather flow
Basin Plan	Water Quality Control Plan
BMPs	best management practices
CFR	Code of Federal Regulations
cfs	cubic feet per second
CTR	California Toxics Rule
CWA	Clean Water Act
Delta	Sacramento-San Joaquin Delta
DHS	Department of Health Services
EC	electrical conductivity
MCLs	maximum contaminant levels
mgd	million gallons per day
mg/L	milligrams per liter
MUN	municipal and domestic supply
NPDES	National Pollutant Discharge Elimination System
POTWs	publicly owned treatment works
Regional Water Board	Central Valley Regional Water Quality Control Board
State Water Board	State Water Resources Control Board
TDS	total dissolved solids
THM	trihalomethane
UAA	Use Attainability Analysis
U.S. EPA	U.S. Environmental Protection Agency
WWTP	Wastewater Treatment Plant

# 1 INTRODUCTION

## 1.1 Role of Use Attainability Analyses in the Water Quality Standards Program

The Federal Water Pollution Control Act Amendments of 1972 called for the establishment of state water quality standards. As amended in 1977, this law became commonly known as the Clean Water Act (CWA). Water quality standards under the CWA consist of three elements: 1) use classification; 2) water quality criteria; and 3) an antidegradation policy (CWA § 303(c)(2); 40 CFR §§ 130.3, 131.6, 131.10, and 131.11). Due to time, logistical, and data limitations when standards were initially developed in the 1970s, certain uses may initially have been designated to water bodies where the use has not occurred and water quality and physical conditions have not been suitable to support the use. In its Order WQO 2002-0015, the State Water Resources Control Board (State Water Board) stated: "...where a Regional Board has evidence that a use neither exists nor likely can be feasibly attained, the Regional Board must expeditiously initiate appropriate basin plan amendments to consider dedesignating the use."

In recognition that accurate use designation is critical to states' water quality standards programs, U.S. EPA provided for states to conduct "Use Attainability Analyses" (UAA) for reviewing and potentially modifying a water body's designated uses, when necessary, based on site-specific information. A UAA may be undertaken for a variety of reasons; however, most occur to assure that other regulatory programs (e.g., National Pollutant Discharge Elimination System (NPDES) and Total Maximum Daily Load), and the regulatory requirements associated with these programs, are implemented appropriately. A credible and defensible UAA can result in refinements or changes in beneficial use designations that lead to either more or less protective criteria. If a credible and defensible UAA indicates a need for a water quality standards change, then a change to the standard is appropriate to effectively implement the water quality standards program (King 2006).

## 1.2 Regulatory Background

Use classifications, termed "beneficial uses" under California law, are "*uses specified in water quality standards for each water body or segment whether or not they are being attained.*" (40 CFR § 131.3(f)) Beneficial uses must be consistent with the goal of CWA § 101(a)(2), which is to provide for "*the protection and propagation of fish, shellfish, and wildlife and...recreation in and on the water,*" unless the State demonstrates that those uses are not attainable. Beneficial uses must also consider among others, the use and value of water for public water supplies, agriculture and industry, and the water quality standards of downstream waters (40 CFR § 131.10).

Beneficial uses for surface waters in the Central Valley Region of California are defined in *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, Fourth Edition, Revised February 2007 (with Approved Amendments), Sacramento River Basin and the San Joaquin River Basin*. The Basin Plan explicitly identifies the beneficial uses for approximately 100 water bodies within the Central

Valley. For water bodies without explicitly identified uses, the "tributary statement" is applied, which states:

*"The beneficial uses of any specifically identified water body generally apply to its tributary streams...In some cases a beneficial use may not be applicable to the entire body of water. In these cases the Regional Water Board's judgment will be applied. It should be noted that it is impractical to list every surface water body in the Region. For unidentified water bodies, the beneficial uses will be evaluated on a case-by-case basis."*  
(Regional Water Board 2007, p. II-2.00)

New Alamo Creek and Ulatis Creek, located near the city of Vacaville, in Solano County, are within the Central Valley Region of California. These water bodies are eventually tributary to the Sacramento-San Joaquin Delta (Delta). The beneficial uses of these water bodies are not explicitly defined in the Basin Plan. The Central Valley Regional Water Quality Control Board (Regional Water Board) has applied the tributary statement to assign the beneficial uses of the Delta to these water bodies. These beneficial uses include municipal and domestic water supply (MUN). MUN is defined in the Basin Plan as, *"Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply."*

Furthermore, the Basin Plan is considered to have designated all water bodies that do not have explicit beneficial use designations as having the MUN use. The Basin Plan states:

*"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 which is, by reference, a part of this Basin Plan, except as provided below:*

- *Old Alamo Creek (Solano County) from its headwaters to the confluence with New Alamo Creek*

*These MUN designations in no way affect the presence or absence of other beneficial use designations in these water bodies. In making any exemptions to the beneficial use designation of MUN, the Regional Board will apply the exceptions listed in Resolution 88-63 (Appendix Item 8)."*

In this case, the MUN designation is not a CWA section 101(a) use. Rather, by application of the state's Basin Plan's tributary statement and State Water Board Resolution No. 88-63, the Regional Water Board has determined the MUN use to be designated for New Alamo Creek and Ulatis Creek. However, no evaluation has ever been conducted to determine if MUN is an existing or attainable use for these water bodies.

Beneficial uses attained on or after November 28, 1975 are considered "existing uses," which means there is evidence that the use has occurred on or after November 28, 1975, or that water quality has been, at any time since this date, sufficient to allow the use to occur. (40 CFR § 131.3(e) "Attainable uses" are, at a minimum, the uses that can be achieved: 1) when effluent limits under sections 301(b)(1)(A) and (B) and section 306 of the CWA are imposed on point source dischargers, and 2) when cost-effective and reasonable best management practices

(BMPs) are imposed on nonpoint source dischargers (U.S. EPA 1994, p. 2-6). A beneficial use that is determined to be an "existing" use may not be dedesignated. To dedesignate a use that is not intended to satisfy the minimum of CWA section 101(a)(2) (i.e., "fishable/swimmable" uses), it must be demonstrated that the use is not attainable through one of the factors listed in 40 CFR § 131.10(g). To remove CWA section 101(a)(2) uses, a UAA, supported by at least one of the factors listed in 40 CFR § 131.10(g), must be conducted (**Figure 1**) (U.S. EPA 1994, p. 2-6 through 2-8).

### 1.3 Purpose and Need for Analysis

The need to evaluate the appropriateness of the MUN use designation for New Alamo Creek and Ulatis Creek has become apparent primarily in the context of renewing NPDES permits for the City of Vacaville's Easterly Wastewater Treatment Plant (WWTP), which discharges treated effluent to Old Alamo Creek, a tributary to New Alamo Creek. NPDES permit effluent limitations are derived, in part, from the water quality criteria/objectives of the receiving waters. The Basin Plan incorporates by reference Department of Health Services (DHS) maximum contaminant levels (MCLs) as water quality objectives for MUN-designated waters. Also, the California Toxics Rule (CTR) states that the CTR human health criteria for the consumption of water and organisms apply to MUN-designated waters. Questions exist as to whether the MUN use exists, or has the potential to exist, in the lower segments of New Alamo Creek and Ulatis Creek.

This UAA has been undertaken to definitively determine whether MUN is an existing or attainable use for the UAA study segments defined in Section 1.4. Although MUN is not a "fishable/swimmable" use under the CWA, it was, nevertheless, determined that a UAA would best facilitate this beneficial use assessment process.

### 1.4 Scope of UAA

This UAA is a focused assessment of MUN use attainability in specified segments of New Alamo Creek and Ulatis Creek. The specific water body segments evaluated in this UAA are:

- New Alamo Creek, from the confluence with Old Alamo Creek to the confluence with Ulatis Creek, and
- Lower reach of Ulatis Creek, from the confluence with New Alamo Creek to the confluence with Cache Slough.

This segment-specific assessment is justified not only by the purpose and need for the UAA, but also because the sources of water to the UAA study segments are markedly different than the sources of water to segments and water bodies upstream.

This UAA only evaluates the MUN use for these water body segments. No other uses are being evaluated. Because this UAA does not evaluate the MUN use in the segments of New Alamo Creek and Ulatis Creek upstream of the UAA study segments, nor does it evaluate the MUN use in Alamo Creek or its tributaries (Encinosa Creek and Laguna Creek) in the upper Alamo Creek

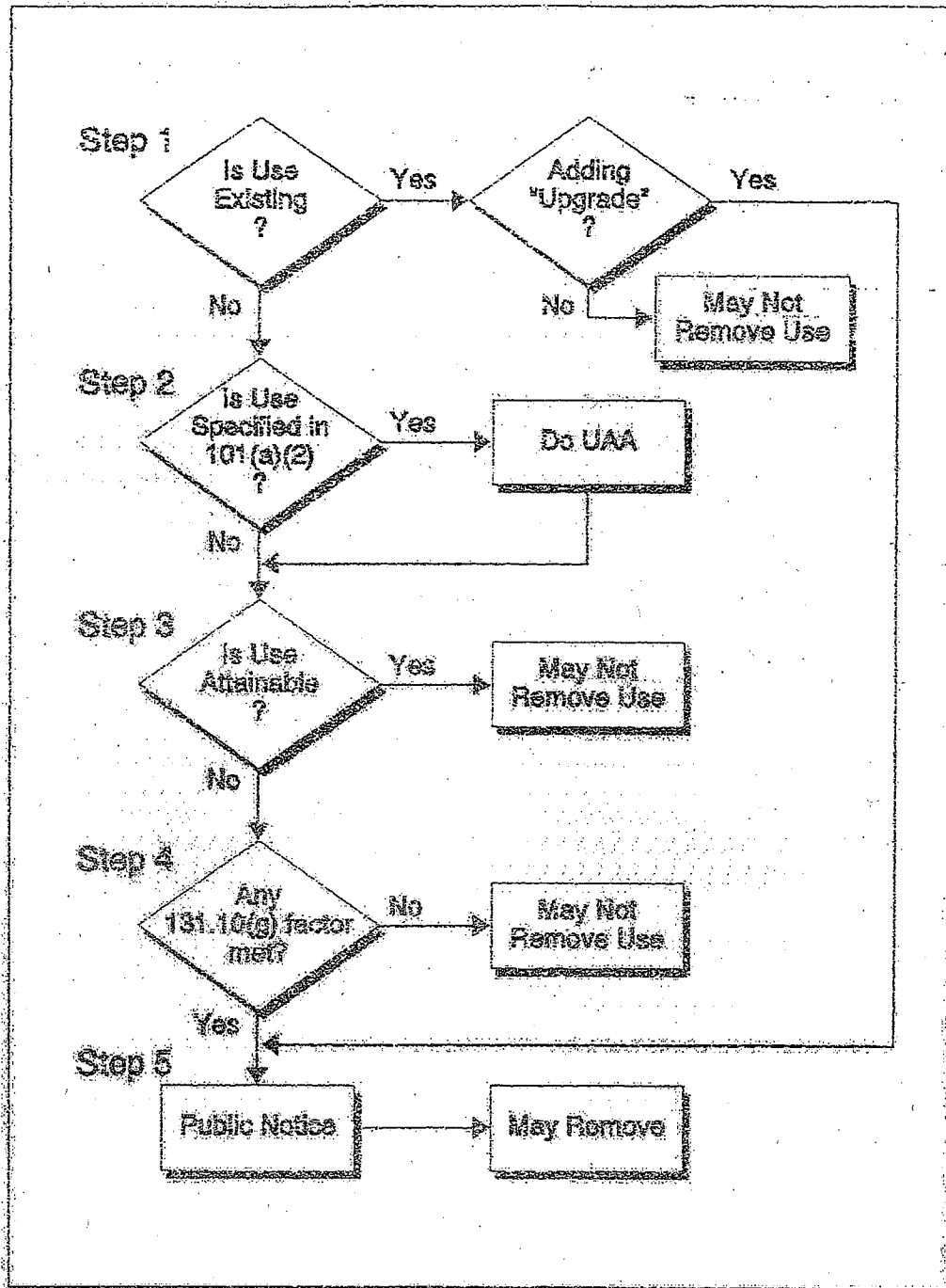


Figure 2-1. Process for Removing a Designated Use.

Source: U.S. EPA 1994.

Figure 1. Process for removing a designated use.

watershed, the uses currently designated for these other water bodies/water body segments will remain unaffected by the findings of this UAA.

Because State Water Board Resolution No. 88-63 is considered to have designated MUN as a beneficial use for all unnamed water bodies, the information presented in this UAA, and its referenced documents, will be used to address both 40 CFR 131.3(g) factors and Resolution No. 88-63. If, based on the findings of this UAA, the Regional Water Board amends the Basin Plan to dedesignate MUN as a use for the segments of New Alamo Creek and Ulatis Creek defined herein, the State Water Board will, as necessary, consider amending Resolution No. 88-63 concurrently with the action of the Regional Board to specifically exempt these water body segments from Resolution No. 88-63.

## 1.5 Regulatory Authority

Beneficial use designations may be addressed by states for entire water bodies or defined segments of water bodies (40 CFR § 131.10; U.S. EPA 1994). Regulations at 40 CFR § 131.10(g) implement the CWA in regard to removing designated uses. The State may remove a designated use, which is not an existing use, as defined in 40 CFR § 131.3<sup>1</sup>, if the State can demonstrate that attaining the use is not feasible, because:

- (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 violation of 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 that 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 the 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 Act would result in substantial and widespread economic and social impact."*

As defined in 40 CFR § 131.3(g), a UAA is a "structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in Sec. 131.10(g)."

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<sup>1</sup> 40 CFR §131.3(e) defines existing uses as those uses actually attained in the water body on or after November 28, 1975.

If a designated use is an existing use (as defined in 40 CFR § 131.3), the use cannot be dedesignated. An existing use is defined in 40 CFR § 131.3(e) as those uses actually attained in the water body on or after November 28, 1975. A use may be determined to be attained if (U.S. EPA 1994):

- the use has actually occurred since November 28, 1975; or
- water quality and/or habitat conditions suitable to attaining the use have occurred at any time since November 28, 1975.

## 2 CHARACTERISTICS OF WATERSHED AND WATER BODY SEGMENTS UNDER EVALUATION

The Ulatis Creek watershed, which includes the Alamo Creek sub-watershed, covers approximately 150 square miles within the northwestern portion of Solano County (). From west to east, the watershed is divided by two topographic highs—the Vaca Mountains and the English Hills. The southern portion of the intervening valley is locally named Lagoon Valley, and the northern portion is named Vaca Valley. Most of the watershed is east of the English Hills within the Sacramento Valley floor. Cache Slough, a northern tributary to the Delta, is the eastern outlet for the watershed. The following sections describe: 1) watershed and water body characteristics for New Alamo Creek, Ulatis Creek, and Cache Slough; which is the first water body downstream of the UAA study area; 2) watershed climate; 3) watershed land uses; and 4) point and nonpoint sources within the watersheds.

### 2.1 Watershed and Water Body Characteristics

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 1961, the Ulatis Soil Conservation District, Solano Irrigation District, and Solano County Flood Control and Water Conservation District jointly developed the *Watershed Work Plan: Ulatis Creek Watershed* (Ulatis Creek Watershed Work Plan) to reduce flooding of the agricultural properties within the Ulatis Creek watershed (Ulatis Soil Conservation District et al. 1961). This work is generally referred to as the Ulatis Creek Watershed Protection and Flood Prevention Project.

The improvement works identified in the Ulatis Creek Watershed Work Plan consisted of: 1) land treatment measures (e.g., conservation cropping system, proper range use, pasture plantings) and 2) structural measures. The structural measures included, "...improvement or realignment of 51.9 miles of floodwater channels together with the construction of drop and grade stabilization structures and inlet structures to convey local runoff into the channels." Prior to this project, Alamo Creek's natural channel flowed in a southeasterly direction for over 7 miles and tied into Ulatis Creek approximately 1.5 miles from Cache Slough. As part of this project, which was completed in the mid-1960s, portions of Alamo Creek within the City were channelized and realigned, cutting off flows from the upper watershed to the lower portion of the original channel. The original, remnant channel is referred to as "Old Alamo Creek." The new, engineered channel is referred to as "New Alamo Creek." Today, Alamo Creek drains the upper