INTRODUCTION

Watershed Sanitary Surveys were prepared on the Solano Project in 1993, 2001, 2006 and 2012. The 1993, 2001 and 2006 documents provide a comprehensive description of the watershed and water quality conditions along Putah Creek below Monticello Dam and along the Putah South Canal (PSC). The State Water Resources Control Board Department of Drinking Water (DDW) agreed that the 2012 Update could be a simplified report updating changes in the watershed and changes in water quality. This 2016 Update is patterned after the 2012 Update and will also be a simplified report. This report presents the findings of the Current Update to the Solano Project below the Monticello Dam Watershed Sanitary Survey. This study covers the period January 2012 through December 2016.

For assistance with abbreviations and acronyms, the reader is referred to the List of Abbreviations at the front of the report. A bibliography and list of contacts are provided in **Appendix A**.

OBJECTIVES OF THE UPDATE

A watershed sanitary survey focuses on the first barrier to contamination of the drinking water supply, namely source water protection. Evaluating source water quality and watershed contaminant sources provides key information to aid in understanding how to maintain and possibly improve the first barrier.

This Update is intended to accomplish the following objectives:

1) Fulfillment of the California Surface Water Treatment Rule (SWTR) and the Interim Enhanced Surface Water Treatment Rule (IESWTR) requirements that surface water agencies conduct a sanitary survey of the source watershed once every five years. Any significant changes within the last five years that affect source water quality are to be identified in each update. In addition, it is required to comment on the appropriate level of treatment for pathogens, specifically for *Giardia*, viruses, and *Cryptosporidium*.

2) Review and evaluation of selected constituents of interest to identify potential water quality or treatment issues for PSC water users.

3) Review and evaluation of selected potential contaminating activities to identify impacts on source water quality. Determine whether it may be useful to conduct additional monitoring to further assess contaminant levels in the source water or contaminants from a particular watershed source.

4) Identification of appropriate watershed management actions to protect and possibly improve source water quality. Development of recommendations for watershed management actions that are economically feasible and within the authority of the Solano County Water Agency and PSC water users to implement is critical.

CONSTITUENTS AND POTENTIAL CONTAMINATING ACTIVITIES COVERED IN THE CURRENT UPDATE

Several water quality constituents were selected for evaluation as part of the Current Update. **Table 1-1** presents a summary of the water quality constituents selected and the reason for selection.

Table 1-1
Water Quality Constituents Selected for Evaluation as Part of the Current Update

Constituent	Reason for Inclusion in Current Update
Turbidity	Turbidity is a measurement of suspended solids in water. Treated water turbidity levels are regulated in the SWTR and the IESWTR.
Total Coliform	Evaluation recommended under the SWTR to determine appropriate level of treatment for *Giardia* and viruses.
Fecal Coliform and *E. coli*	Source water fecal coliform is a more specific surrogate for fecal contamination.
Giardia	*Giardia lamblia* is infectious to humans. Source water levels of *Giardia* are used to determine treatment requirements under the SWTR.
Cryptosporidium	*Cryptosporidium parvum* is infectious to humans. Actual source water levels of *Cryptosporidium* will be used to determine treatment requirements as part of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR).
Total Organic Carbon	Total organic carbon (TOC) is a surrogate measure of disinfection by-products (DBP) precursor material in water. TOC levels in either source or treated water are used to determine treatment requirements in the Stage 1 Disinfectant/Disinfection By-Product Rule (D/DBP).
Volatile and Synthetic Organic Compounds	Most VOCs and SOCs are formulated for, or are by-products from, industrial, agricultural, and urban use. Pesticides are a main subgroup of the SOCs used for agriculture and urban application. Many of these constituents have been regulated by the Phase I, II, and V regulations.
Copper	Copper has a secondary MCL and is also regulated under the Lead and Copper Rule at the tap.

Eight potential contaminating activities were selected for review as part of the Current Update: spills, recreation, agriculture, canal cleaning, lateral sources, grazing, urban runoff, and fires. Each of these activities can contribute at least one of the constituents identified in **Table 1-1** to the source water. These activities were selected based on

their presence in the watershed, and were identified by SCWA as key contaminating activities.

REPORT ORGANIZATION

Section 1 – Introduction

This section describes the objectives of the Current Update, lists the main constituents and potentially contaminating activities covered, and includes a description of the basic report organization.

Section 2 - The Watershed and Supply Systems

This section is largely descriptive and provides: (1) a brief overview of the physical, hydrologic, and land use characteristics of the watershed, (2) a description of the existing water supply system, and (3) contains a watershed map delineating the watershed and land use in the watershed. For more detailed descriptive information on watershed characteristics, the reader is referred to the 1993 Watershed Sanitary Survey.

Section 3 – Source Water Quality Review

This section provides a review of the constituents of interest, including an explanation for their selection and a summary of the data obtained for the period of study for each constituent.

Section 4 – Watershed Contaminant Sources Review

This section describes pertinent characteristics of each of the eight potential contaminating activities that were reviewed as part of this Update. If applicable, each potential contaminating activity will include a discussion on background and occurrence, seasonal patterns, water quality issues and data review, regulation and management, and source water protection activities.

Section 5 – Key Findings and Recommendations

This section consists of a discussion of key findings, update on recommendations from the 2012 watershed sanitary survey and a list of current recommendations.