

INTRODUCTION

This report presents the findings of the Fourth Update to the Sonoma County Water Agency's (Water Agency) Watershed Sanitary Survey. This study covers the period January 1, 2018 through December 31, 2022. The Third Update was completed in December 2018, the Second Update was completed in November 2013, the First Update was completed in March 2007, and the initial Watershed Sanitary Survey was completed in 2001 in accordance with the California Surface Water Treatment Rule (SWTR).

For assistance with abbreviations and acronyms, the reader is referred to the List of Abbreviations at the front of the report.

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 Fourth Update is intended to accomplish the following objectives:

- Fulfillment of the California SWTR and the Interim Enhanced Surface Water Treatment Rule (IESWTR) require that surface water agencies or groundwater under the influence of surface water agencies conduct a watershed 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*.
- Review and evaluation of selected constituents of interest to identify potential water quality issues at Radial Collector Well 5. Assess the ability of Radial Collector Well 5 to meet standards based on current regulatory framework.
- 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.
- 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 Water Agency to implement is critical.

SECTION 1 - INTRODUCTION

CONSTITUENTS AND POTENTIAL CONTAMINATING ACTIVITIES COVERED IN THE FOURTH UPDATE

Several water quality constituents were selected for evaluation as part of the Fourth 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 Fourth Update

Constituent	Reason for Inclusion in Fourth Update
Turbidity	Turbidity is a measurement of suspended solids in water. Division of Drinking Water (DDW) requires routine monitoring of turbidity in Radial Collector Well 5 to demonstrate the integrity of the Riverbank Filtration system.
Total Coliform	Levels in source water need to be evaluated to determine appropriate level of treatment for <i>Giardia</i> and viruses under the SWTR (if Radial Collector Well 5 were used during the periods when it is under the direct influence of surface water).
<i>E. coli</i>	<i>E. coli</i> is specific for fecal contamination.
Total Organic Carbon	Total organic carbon (TOC) is a surrogate measure of disinfection by-products (DBP) precursor material in water.
Total Trihalomethanes	Total Trihalomethanes (TTHMs) are disinfection by-products formed in disinfected treated water. Treated water levels are regulated by the Stage 2 D/DBP Rule.
Haloacetic Acids	Haloacetic acids (HAA5) are disinfection by-products formed in disinfected treated water. Treated water levels are regulated by the Stage 2 D/DBP Rule.

Nine potential contaminating activities were selected for review as part of the Fourth Update: spills, wineries, mines, agriculture, recreation, urban runoff, wastewater, leaking underground storage tanks, 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 study watershed, and were identified by the Water Agency as key contaminating activities.

DESCRIPTION OF HOW THE FOURTH UPDATE WAS CONDUCTED

The project team consisted of a Technical Committee comprised of representatives from the Water Agency and the consultant team of Palencia Consulting Engineers. The Technical Committee participated in developing the scope of work and reviewed identification and development of key findings and recommendations.

Water quality data for Radial Collector Well 5 and the Russian River at the diversion point was obtained from the Water Agency. The consultant team collected information on contaminant sources in the watershed through literature reviews, Internet searches, and discussions with various agencies' staff. References and agency contact information is provided in **Appendix A**.

REPORT ORGANIZATION

Section 1 – Introduction

This section describes the objectives of the Fourth Update, lists the main constituents and potentially contaminating activities covered, describes how the Fourth Update was conducted, 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 study watershed, (2) a description of the existing water supply system, and (3) watershed maps delineating the study watershed and outlining land use in the watershed. For more detailed descriptive information on watershed characteristics, the reader is referred to the 2001 and 2007 Watershed Sanitary Surveys.

Section 3 – 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 nine potential contaminating activities that were reviewed as part of this Fourth 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 – Recommendations

This section consists of a list of recommendations for future source water protection efforts.

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